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NEW

FAMILY HERBAL.

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A

NEW
FAMILY HERBAL:

OR

POPULAR ACCOUNT

OF

THE NATURES AND PROPERTIES

OF THE VARIOUS

PLANTS

USED IN

MEDICINE, DIET, AND THE ARTS.

BY

ROBERT JOHN THORNTON, M. D.
LECTURER ON BOTANY AT GUY'S HOSPITAL, &c. &c.

THE PLANTS DRAWN FROM NATURE,
BY HENDERSON:
AND ENGRAVED ON WOOD,
BY THOMAS BEWICK.

London:
PRINTED FOR RICHARD PHILLIPS,
BRIDGE-STREET, BLACKFRIARS;
AND MAY BE HAD OF ALL BOOKSELLERS.

1810.

A salve to cure St. Anthony's fire, Scalds & Bum
relt Hog's lard & mix it up with snow int sa

To ANDREW DUNCAN, M.D.
&c. &c.

DEAR PROFESSOR,

THE University of Edinburgh, of which you are a distinguished member, like the city of Thebes during the life of Epaminondas, has emerged from obscurity into a splendour unparalleled in literary history, and has spread its fame by a glorious succession of men of the highest eminence in Science and general Literature.

The names of MONRO, CULLEN, BLACK, RUTHERFORD, HOPE, that of your illustrious FATHER, and your OWN, will be inscribed in the records of science to the remotest posterity, and future ages will admire those labours which have advanced the honour of the healing art, and thereby been the means of saving more than the sword has destroyed.

When we examine the state of medical knowledge before this epoch, we find nothing that can compensate for the labour of reading volumes, now

justly doomed to moulder on the shelf. *Pharmacy* in particular was a jumble of the most heterogeneous compounds. Your father's, and then your own *Pharmacopœia** formed after his model, appeared, and all became clearness and precision. Herbals especially, as parts of the Pharmacopœia, were at this period a disgrace to medicine, and highly dangerous to the community.

A desire to become acquainted with the virtues of Plants seems to have been coeval with the first dawn of knowledge; but the figures contained in the books treating of these subjects are so inaccurate, and the descriptions so vague, credulous, and, in every sense, so gross and vulgar, that mistakes were unavoidable, and false properties were bestowed on the most common and trivial Plants.

The Medical Botany of the ingenious and able Woodville cleared much rubbish from this Augæan stable, but the expensive mode of its publication deterred many practitioners, and families in general, from the purchase; there was, therefore, wanted for general and ordinary use a companion to your useful and perfect *Pharmacopœia*. Nothing more was required than simply to tread in your footsteps, adding Figures by such an Artist as Bewick, and correct Descriptions, with the addition of some general Prescriptions, combining at the same time

* The Edinburgh New Dispensatory, by Dr. Andrew Duncan.

from all authors whatever related to the subject. This could not be accomplished in a *Pharmacopœia*; the present Work, therefore, is presented to the world as a more complete and perfect Herbal than has hitherto appeared; and as intended to unite the various advantages that have been derived to science from your "Edinburgh New Dispensatory." I take this opportunity, therefore, to acknowledge the source of much of my information, which I would not, indeed, disfigure by a change of words, but have generally transcribed from your work, so that considerable part of the merit which may be found in this Herbal must in justice be ascribed to your industry and intelligence; and I hope, and trust, that the very superior Engravings of Bewick will render it in every respect a useful introduction to Pharmaceutical Science.

I have necessarily had frequent occasion to describe the culinary properties of many vegetables, and on this subject my obligations have been considerable to the best book on this art, namely, that by Duncan Macdonald.

It is presumed that the reader will here find, for the first time, many valuable properties of Plants ascertained, which are either wholly new, or have hitherto been locked up in large, expensive, and inaccessible works of British growth, or in scarce books on Botany published in foreign countries.

Whatever may be the merits or defects of this

NEW HERBAL, they are now before the public; for myself, I shall honestly declare that, if it tend to advance the Sciences of Medicine and Botany, and is honoured with your approbation, I shall enjoy the full reward of my labours.

I have the honour to be, Sir,

With perfect respect and esteem,

Your obliged and devoted Servant,

ROBERT JOHN THORNTON.

Hind-street, Manchester-square,
January 1, 1810.

N.B. *Those persons who desire to possess a complete and familiar Introduction to the Science of Botany, will find one in the "GRAMMAR OF BOTANY," just published, a work written expressly, by the Author of this Herbal, for the use of botanical and medical Students.*

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Scotch Fir	Pinus Sylvestris	xxi.	9	781
Scurvy-Grass, Common	Cochlearia Officinalis	xv.	1	608
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Sea Onion	Scilla Maritima	vi.	1	334
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Senna, or Egyptian Cassia	- - - -	x.	1	417
Silver Fir Tree	Pinus Picea	xxi.	9	776
Simaruba Quassia	Quassia Simaruba	x.	1	449
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Small Burnt Saxifrage	Pimpinella	v.	2	304
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Snake-Root	Aristolochia Serpentaria	xx.	4	743
Snakeweed	Polygonum Bistorta	viii.	3	379
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Vomic Nut	Strychnos Nux Vomica	v.	1	169
Wake-Robin	Arum Maculatum	xx.	5	750
Walnut Tree, Common	Juglans Regia	xxi	6	770
Wall Pellitory	Parietaria Officinalis	xxiii.	1	860
Wall Stone-Crop, or Wall Pepper	Sedum Acre	x.	5	463
Water-Cresses	Sisymbrium Nasturtium	xv.	2	615
Water Dock	Rumex Hydrolapathum	vi.	3	364
Water Germander	Teucrium Scordium	xiv.	1	586
Water Hemlock	Cicuta Virosa	v.	2	315
Water Trefoil	Menyanthes Trifoliata	v.	1	98
Waybread	Plantago Major	iv.	1	86
White Bryony Root	Bryonia Alba	xxii.	10	827
White Hellebore	Veratrum Album	iii.	1	856
White Fraxinella	Dictamnus Albus	x.	1	432
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Willow Leaved Croton -	Croton Cascazilla - -	xxi.	9	805
Wild Succory - -	Cichorium Jutybus -	xix.	1	680
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Winter's Bark Tree -	Wintera Aromatica -	xiii.	4	552
Winter Cherry, Common	Physalis Alkekengi -	v.	1	171
Winter Wheat -	Triticum Hibernum -	iii.	2	76
Wolf's Bane, or Monk's-Hood - -	Aconitum Napellus -	xiii.	3	549
Wood-Betony -	Betonica Officinalis -	xiv.	1	584
Wood-Sorrel -	Oxalis Acetosella -	x.	5	461
Woody Nightshade -	Solamam Dulcamara -	v.	1	141
Wormseed - -	Artemisia Santonicum	xix.	2	710
Wormwood - -	Artemisia Absinthium	xix.	2	688
Yarrow, Common -	Achillea Millefolium -	xix.	2	722
Yellow-Flowered Rhododendron -	Rhododendron Chrysanthus -	x.	1	458
Yellow Gentian -	Gentiana Lutea -	v.	2	243

ERRATUM.

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NARROW-LEAVED GINGER.

AMOMUM ZINGIBER.

Class I. Monandria. *Order* I. Monogynia.

ESSENTIAL GENERIC CHARACTERS. *Calyx* trifid, unequal, cylindric: *Corolla* three-parted, unequal, spreading: *Nectary* two-lipped, almost erect.

SPECIFIC CHARACTERS. *Scape* middle-sized: *Spike* ovate: *Leaves* linear-lanceolate.

DESCRIPTION.

THIS plant has two kinds of stalks; one of which bears only the leaves, (which resemble those of reeds, common in India, and closely wound round each other at the base,) and rises to a foot or two in height: the other kind bears the flowers, and does not rise beyond ten or twelve inches in height, terminating at the top by a kind of ear of very beautiful colours, formed of membranous scales, amongst which the flowers proceed, which are

composed of five irregular petals, which have somewhat the appearance of being lipped, and are succeeded by a capsule containing three cells, and a great number of seeds.

HISTORY.

Ginger is a perennial plant, indigenous in the East Indies, but now introduced into the West India islands. It is cultivated there very much in the same manner as potatoes are here, and is fit for digging once a-year, unless for preserving in syrup, when it should be dug at the end of three or four months, at which time it is tender and full of sap.

It is a hot-house plant, flowers with us in September, and was first cultivated in 1731, by Mr. Miller, in the physic-gardens at Chelsea.

Ginger is distinguished into two sorts, the *black* and the *white*. The former is rendered fit for preserving by means of boiling water, the latter by insolation; and as it is necessary to select the fairest and roundest sorts for exposure to the sun, *white* ginger is commonly one third dearer than *black*.

Black Ginger consists of thick and knotty roots, internally of an orange or brownish colour, externally of a yellow-gray. *White Ginger* is less thick and knotty, internally of a reddish-yellow, and externally of a whitish-gray or yellow. It is firm and resinous, and more pungent than the black. Pieces which are worm-eaten, light, friable, or soft, and very fibrous, are to be rejected.

Candied Ginger should be prepared in India, from the young and succulent roots. When genuine, it is almost transparent. That manufactured in Europe is opaque, fibrous, and hard, and not to be compared to the other.

Ginger has a fragrant smell, and a hot, biting, aromatic taste. Neumann obtained by distillation with water from 7680 parts of *white* ginger, about 60 of a volatile oil, having the smell and distinguishing flavour of the ginger, but none of its pungency. The watery extract was considerably pungent, and amounted to 2720, after which alcohol extracted 192 of a very pungent resin. Alcohol applied first extracted 660 of pungent resin, and water afterwards 2160 of a mucilaginous extract, with little taste, and difficultly exsiccated. The *black* ginger contained less soluble matter than the white.

MEDICAL USES.

Ginger is a very useful spice in cold flatulent colics, and in laxity and debility of the intestines; it does not heat so much as the peppers, but its effects are more durable. It may also be applied externally as a rubefacient.

The employment of ginger in beer is well known, where the latter would produce much flatulency.

Dyspeptic patients from hard drinking, and those subject to flatulency and gout, have been known to receive considerable benefit by the use of ginger tea; taking two or three cupfuls for breakfast, suiting it to their palate.

Many gouty patients have for years been in the habit of taking a tea-spoonful of ginger powder, mixed in any liquid, an hour before dinner, and, they declare, with very considerable advantage.

When employed with food it is called a condiment, and by stimulating the stomach and bowels it may be considered as one of the most useful.

It is often employed as a corrective with rhubarb, and other drastic purges, to prevent gripings of the bowels, and it stimulates them so as to require a less dose to act upon them.

As ginger promotes the circulation through the extreme vessels, it is to be advised in torpid and phlegmatic habits, where the stomach is subject to be loaded with slime, and the bowels distended with flatulency. Hence it enters into the compound tincture of cinnamon and the aromatic powder.

PREPARATIONS.

Syrup of Ginger. (Syrupus Zingiberis.)

Take of ginger, bruised, four ounces;
——— boiling distilled water, three pints.

Macerate for four hours, (twenty-four, Dub.) and strain the liquor; then add double-refined sugar, and make into a syrup, according to the mode prescribed. (Vide article *Saccharum*, Sugar.)

Tincture of Ginger. (Tinctura Zingiberis.)

Take of ginger, in coarse powder, two ounces; proof spirit, two pints.

Digest in a gentle heat for seven days, and strain.

This tincture is cordial and stimulant, and is only employed as a corrective to purgative draughts.

Preserved Ginger.

The root for this purpose is dug up when the shoots do not exceed five or six inches in height. Being picked and washed, these are scalded till they are rendered tender, then put into cold water, and afterwards scraped and peeled. During this process the water is often changed. The roots are then put into jars, and covered with a thin syrup, which, after two or three days, is removed, and a richer syrup substituted in its place. This is sometimes removed, and a fourth put on; but they seldom employ more than three syrups. This is what is imported into England, and is used much as a dainty, but not for any medicinal purpose.

Ginger Wine.

Take twenty quarts of water, five pounds of sugar, three ounces of white ginger, and an ounce of stick liquorice, and boil them well together; when it is cold put a little new yeast upon it, but not too much; then put it into the barrel for ten days, and after that bottle it: put a lump of powdered white sugar into every bottle.

This is an excellent wine for gouty habits, and I have been much in the habit of recommending it in such cases in lieu of any other wine.

CARDAMOM.

AMOMUM CARDAMOMUM.

Class I. Monandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* trifid, unequal, cylindric: *Corolla* three-parted unequal, spreading: *Nectary* two-lipped, almost erect.

Spec. Char. *Scape* very simple and short: *Bractes* alternate, loose.

DESCRIPTION.

This plant produces a root like the yellow flag, or iris, which in the spring sends forth many seed-like stalks, which decay the following autumn. These bear large lanceolate leaves, acutely pointed, ribbed, alternate, sheathing the stalks. The flowers consist of a single petal, or leaf, funnel-shaped, the border of which is three-parted. The nectary is composed of one leaf, spear-shaped. The stamen consists of an anther without a filament. The stigma of the pistillum is turbinate; the capsule fleshy, ovate, three-cornered and three-valved.

HISTORY.

The Cardamoms are brought from Malabar, and other places of the East Indies, in their pods or pericarps; and when choosing these, we should observe that they be of a pale colour on the outside, well-closed, and full of sound, reddish brown, odorous and aromatic seeds. These must be kept in their pods, for when taken out they soon lose a great part of their aromatic flavour.

MEDICAL VIRTUES.

These seeds are an elegant and useful aromatic, of a grateful smell and flavour, very warm, yet not fiery like pepper, or capable of producing a disagreeable heat or inflammation.

The natives of the country where this plant is produced use them as a condiment, mixing the seeds with betel, and find that they promote digestion.

Their great maxim of health and longevity is to keep the feet and stomach warm, and the head cool; and using a quantity of vegetable foods, warm spices become the proper corrective, without inflaming the blood.

By us it is employed chiefly as an adjuvant, and to cover the taste of other medicines, especially mineral waters and saline medicines; and the London College have ordered apothecaries to keep in their shops the following preparations:

PREPARATIONS.

Tincture of Cardamoms. (Tinctura Cardamomi.)

Take of the seeds of the lesser Cardamom freed from their husks and bruised, three ounces,
——— proof spirit, two pints.
Digest for eight days, and strain the tincture.

Compound Tincture of Cardamoms, formerly called Stomachic Tincture. (Tinctura Cardamomi composita.)

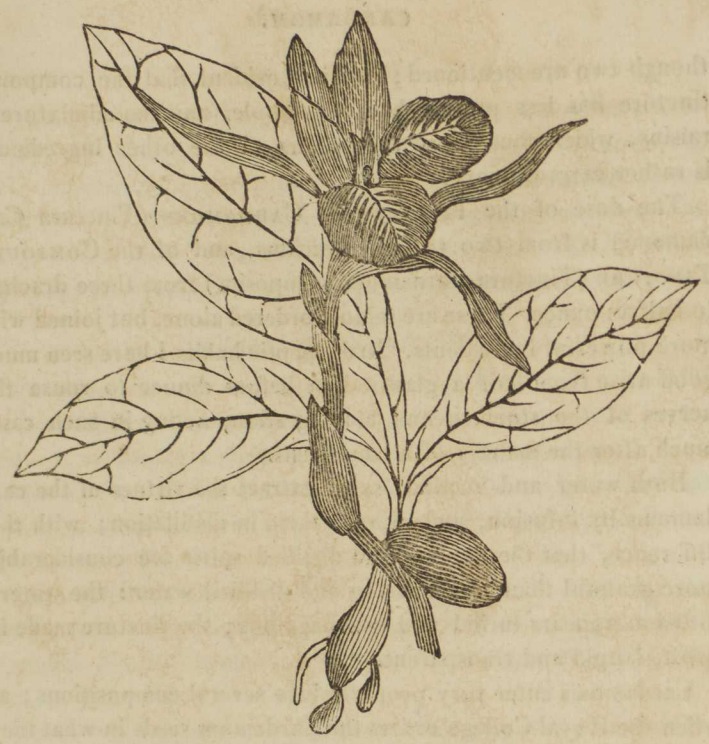
Take of the seeds of the lesser Cardamoms husked and powdered,
——— caraway seeds, powdered,
——— cochineal, powdered,—two drachms of each:
——— cinnamon, bruised, half an ounce;
——— raisins, stoned, four ounces;
——— proof spirit, two pints.
Digest for fourteen days, and strain the tincture.

Of the cardamoms it is probable there is but one kind, although two are mentioned; and it is evident that the compound tincture has less power than the simple, and the admixture of raisins, which must blunt the powers of the other ingredients, is rather extraordinary.

The dose of the Tincture of Cardamoms (Tinctura Cardamomi) is from two to three drachms, and of the Compound Tincture (Tinctura Cardamomi composita) from three drachms to half an ounce. These are seldom ordered alone, but joined with more powerful ingredients. In dyspeptic habits I have seen much good arise from half a glass taken before dinner to rouse the nerves of the stomach and aid digestion, acting in such cases much after the manner of a condiment.

Both water and rectified spirit extract the virtues of the cardamoms by infusion, and elevate them in distillation; with this difference, that the tincture and distilled spirit are considerably more grateful than the infusion and distilled water: the watery infusion appears turbid and mucilaginous; the tincture made in spirit, limpid and transparent.

Cardamoms enter very properly into several compositions; as when the Royal College orders the Cardamom seeds in what they have thought fit to call Rhubarb Wine (Vinum Rhabarbari, P. L.), also the Compound Tincture of Cinnamon (Tinctura Cinnamomi composita, P. L.), the Compound Tincture of Gentian (Tinctura Gentianæ composita, P. L.), and the Tincture of Rhubarb (Tinctura Rhabarbari, P. L.), Tincture of Senna (Tinctura Sennæ, P. L.), and the Aromatic Powder (Pulvis Aromaticus, P. L.), and, lastly, the Aromatic Confection (Confectio Aromatica, P. L.).



ROUND KÆMPFERIA.

ZEDOARY, P. L.

KÆMPFERIA ROTUNDA, P. L.

Class I. Monandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* six-parted, three of the parts larger, spreading, one two-parted: *Stigma* two-plated.

Spec. Char. *Leaves* lanceolate, petioled: *Segments* of the *Corolla* linear.

DESCRIPTION.

This plant rises to five or six feet. The stalks are chiefly formed of convoluted leaves wrapped round one another at their bases. The leaves are six or eight feet long, and three broad, pointed, standing upon broad foot-stalks. The flower-stalks rise but little above the ground, and on these are placed the flowers in spikes. No calyx. The corolla is composed of six petals; the three lower decline downwards, are long and narrow; the two upper are divided so deeply as to appear like a flower with four petals, and the side petal is bifid, or deeply cleft.

HISTORY.

This plant has a most fragrant odour, and flowers in July and August, but never produces seeds in our stoves. It was cultivated by Miller in 1768. It is a native of the East Indies. On the authority of the Royal London College we have referred the officinal *Zedoary* to this plant: but Bergius says that it is a species of Amomum; and this opinion receives additional weight by the description of the true Zedoary as given us by Camellus.

The root of this plant is brought over to us in oblong pieces two or three inches in length, bent, rough and angular, firm and ponderous, about the thickness of one's finger; or in roundish ones about an inch in diameter, both of them of an ash colour on the outside, and white within, and indiscriminately used. They possess a fragrant agreeable smell, much resembling camphor; and by distilling the fresh root we find a small portion of a true camphor swimming at the top of the distilled water, in the form of very small and thin laminæ. It possesses also a slight bitterness, and considerable warmth and pungency.

MEDICAL VIRTUES.

Dr. Donald Monro extols this root as a warm cordial stomachic, and an expeller of wind, excellent in phlegmatic habits, and the pituitous asthma. He says, that it is not much used in the present practice of physic: but that it is certainly a good medicine, and may be prescribed, with advantage, where a warm cordial bitter is indicated.

Cullen says, it does not merit a place in the Materia Medica, and Woodville reports it should be wholly discarded: but our present knowledge is too limited to expunge any one article from the few that have been selected out of thirty thousand plants.

When ordered, it should be directed from fifteen grains to a drachm. An useful tincture might be made of it, as I have found, and in this way it has proved an excellent remedy in *Pyrosis*, flow of water from the mouth; and heart-burn, *Cardialgia*.

PREPARATIONS.

The Royal London College have only received it in their aromatic confection, formerly called Cordial Confection (Confectio Aromatica, olim Confectio Cardiaca, P. E.), of which it makes the principal ingredient, which is thus ordered:

CORDIAL CONFECTION. (Confectio Cardiaca.)

Take of zedoary, grossly powdered,
——— saffron, half a pound of each:
——— distilled water, three pints.

Macerate for twenty-four hours, then press and strain. Evaporate the strained liquor to a pound and a half; and then add the following ingredients reduced to a fine powder:

——— compound powder of crabs claws, sixteen ounces;
——— cinnamon;
——— nutmeg, two ounces of each;
——— cloves, an ounce;
——— lesser cardamom seeds, husked, half an ounce;
——— double refined sugar, two pounds;

Make a confection.

The dose of this confection is from one scruple to one drachm, in any convenient vehicle, to raise and recruit the spirits; and as an *adjuvant* it is more employed than any other ingredient in th whole Materia Medica, combined with more active ingredients. It enables persons to retain medicines, which otherwise would nauseate the stomach, gives a colour to colourless ingredients, and produces a physicky taste, so necessary when exhibiting certain remedies, as camphorated mixture, &c.

LONG-ROOTED TURMERIC.

TURMERIC, L. P.

CURCUMA LONGA, L. P.

Class I. Monandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Stamina* five; four barren, one fertile: *Corolla* four-parted: *Nectary* three-lobed: *Filament* flat.

SPEC. CHAR. *Leaves* lanceolate: lateral *Nerves* very numerous.

DESCRIPTION.

THE leaves are about a span long, and three or four inches broad, of a fine green colour, and pointed at the end. The flowers grow on stalks of eight, ten, or more inches high, and of the thickness of one's little finger; they are collected in a kind of scaly cone, of an oblong figure, of a pale reddish colour.

HISTORY.

Turmeric is a perennial plant, a native of the East Indies. The roots are tuberous, knotty, and long, wrinkled, externally of a pale yellow colour, and internally of a shining saffron brown. They have a weak aromatic smell, and a slightly bitter aromatic taste. They contain a very little essential oil; and

Neumann got from 960 parts, 320 watery and afterwards 50 alcoholic extract, and inversely 150 alcoholic and 210 watery.

MEDICAL USES.

Turmeric, when taken internally, tinges the urine of a deep yellow colour, and acts as a gentle stimulant. It has been celebrated in diseases of the liver, jaundice, cachexy, dropsy, intermittent fevers, &c. But its internal use in this country is almost confined to its being a principal ingredient in the composition of curry-powder, in which form it is used in immense quantities in the East Indies. It is also a most valuable dye, and an excellent chemical test of the presence of uncombined alkalies; for the yellow colour of turmeric is changed by them to a reddish brown.

It possesses rather a fragrant odour, is slightly bitterish, and excites a moderate degree of warmth in the mouth, imparting to the saliva a yellow tinge.

It is used in the East as a condiment to food, and employed by us chiefly in cookery for colouring of puddings. It is employed also in dyeing a fine yellow.

The dose of this root is from a scruple to a drachm in substance.

From an ignorant suspicion that the jaundice was to be cured by whatever produced a yellow colour, that is, I suspect, seeing the bile diffused into the habit, from obstruction of the passage of the gall-duct, these yellow remedies were used to supply its place, just as the yolks of eggs are used in the same complaint; nor when bracers or stimulants can we object to these popular remedies.

As a cordial, aromatic, mild bitter, the Turmeric has often roused the torpid actions of the *primæ viæ*, and removed the obstruction when arising from spasm; and as rhubarb was at the same time commonly used, this carried off the slime, another common cause of obstruction, and also of spasm; and where the eggs were eaten raw as a nutritious strengthener, these, together often with the saffron in tea, cured slight cases of jaundice, especially in children; and therefore I cannot consent, with Dr. Cullen and Dr. Woodville, to the discarding this mild stomachic altogether from amongst the class of remedies, although it possess only slender virtue.

EUROPEAN OLIVE.

OLEA EUROPÆA.

Class II. Diandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* four-cleft, segments subovate: *Drupe* one-seeded.

SPEC. CHAR. *Leaves* lanceolate, very entire: *Racemes* axillary, contracted.

DESCRIPTION.

THIS is an evergreen, with oblong, narrow, willow-like leaves, and monopetalous whitish flowers, cut into four sections, or segments, followed by a cluster of oval black fruit, containing under a fleshy pulp a hard rough stone. It bears the ordinary winters of our climate.

HISTORY.

The olive tree is a native of the south of Europe and north of Africa. It is cultivated in France, Spain, and Italy, for the sake of its fruit, and the oil expressed from it. Olives, when fresh, have an acrid, bitter, and extremely disagreeable taste;

but they are only eaten when pickled. They are first steeped for several days in a ley of wood-ashes, and then pickled in a strong solution of muriate of soda.

They are principally valued for the oil they afford by expression.

For this purpose they are gathered when fully ripe, and immediately bruised and subjected to the press. The finest oil flows first, and a very bad oil is obtained by boiling the magma, which remains after expression, in water. According to Baumé, they are gathered when sufficiently ripe: they are then dried, to deprive the mucilage, of which they contain a large quantity, of its water, and are expressed after being bruised, and moistened with a little water, to render the oil more fluid. By rest, the mucilage and water which may have passed with it separate. Olive oil is sometimes mixed with oil of poppy seeds; but, by exposing the mixture to the freezing temperature, the olive oil freezes, while that of the poppies remains fluid; and as oils which freeze with most difficulty are most apt to become rancid, olive oil is deteriorated by the admixture of poppy oil.

Good olive oil should have a pale yellow colour, somewhat inclining to green, a bland taste, without smell, and should congeal at 38° Fahrenheit. In this country it is frequently rancid and sometimes adulterated.

MEDICINAL USE.

Taken internally, it operates as a gentle laxative, and is given in cases of worms. It is also given in large quantities to mitigate the action of acrid substances taken into the stomach. It is used externally in frictions, in gargles, and in clysters; but its principal employment is for the composition of ointments and plasters.

By woeful mistake I once took the whole contents of a two-ounce phial of Eau de Luce: but by presence of mind, or instinct, I immediately flew to the aid of butter; and this, every one knows, melting in the heat of the stomach acts as oil. I mention this, as upon such occasions time is pressing, and danger urgent, and often there may be found immediately this one and not the other kinds of emetics.

Taken largely it will act as a vomit, from its sticking to the fauces, and, irritating them, producing sympathetic actions of the stomach and intercostal muscles.

Oil is supposed destructive to worms, from the fact, that if a wasp be touched with an oiled feather it will instantly die, through the effect of oil in stopping the spiraculæ of insects. But from experiments it is found, that, though oil be poured upon them, worms will continue seemingly uninjured. The above supposition, therefore, seems to be unfounded, and to arise from a mistaken analogy.

But the most remarkable property attributed to oil, is the cure it is thought to perform on persons bit by a viper, it being esteemed the sovereign antidote. In the Philosophical Transactions, vol. xxxiv. p. 310, are related the experiments made by one William Oliver, who suffered his arm to be bit by a viper and waited till the most violent symptoms ensued, when these were soon removed by the applying warm oil of olives to the affected part*.

Mead, in his Treatise on Poisons, speaks of a remedy which was reckoned in his time a real specific against the bite of the viper †. He says that the viper-catchers in England used it with so much confidence, that they were no more afraid of the bite of a viper than a common prick of a pin. Mead purchased this secret, and found it to be nothing more than the fat of the viper itself, which they rubbed on the bitten part.

The Academy of Sciences in Paris, struck with the importance of this seeming discovery, deputed two of their members, Messrs. Geoffroi and Hanauld, to inquire into the subject; and they determined that oil is no specific against the bite of the viper ‡. Vide Mem. de l'Academ. 1737.

Linnæus (Amœn. Acad. vol. vi. p. 213) mentions that he was disappointed in the use of oil, and says that the woman bitten by

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* The fact is not to be disputed, but it arose from the poison of one viper not being destructive; for Fontana, who wrote on Poisons, doubts whether a man was ever killed by the bite of one viper.

† This illustrious physician tried an experiment first with a dog, which he caused to be bitten in the nose. It recovered by the oil. But, says Fontana, had nothing been employed, recovery would have taken place: for one viper, as with the human subject, is incapable of producing death. Lunar caustic is found to be the specific for the bite of the viper. Vide our Philosophy of Medicine, vol. iii.

‡ Experiments were made by these gentlemen on rabbits, pigeons, and mice; and these were quickly destroyed, although the oil was employed, and the viper's fat.

the Coluber Chersea, to whom he administered it both externally and internally, died notwithstanding in great agony.

The prevention of canine madness is said to have arisen in a similar way by the use of oil, and successful cases are related in Frank. Samml. T. B. 590. But experience, in other hands, has contradicted these positive assertions*.

A more extraordinary effect of oil is reported by Mr. Baldwin, the British consul at Smyrna, who observed that amongst the numerous tribe of oil-porters, none were infected with the plague. Led by this hint, he proposed unction of the body with oil to keep off the plague; and the following was the result of the first trial. In the year 1792, twenty-two Venetian sailors lived five days with three infected persons, all of whom died; but the twenty-two sailors, who had been repeatedly anointed with the oil, remained free from the infection. Three Armenian families, consisting of twenty-seven persons, occupying the same floor, closely attended the sick of the plague, but, being daily rubbed with oil, were preserved from the infection. "The nurses, in our hospitals of Smyrna, who attend the sick night and day," says Baldwin, "by the same method have been happily preserved from contagion."

After this the oil was employed in the first stages of the plague

* The application of oil, in this country, does not appear to have been employed to the part bitten, but afterwards exhibited to the patient upon the accession of the hydrophobia. Dr. Girdlestone tried it in one case, and he gives us this information: "Immediately upon seeing him, I gave him a large cup of olive oil. He had much increase of convulsive action on his endeavours to swallow it; but after getting a little down, he swallowed the rest very hastily. The cooling and pleasant sensations, which the oil quickly produced, gave him at first great hopes; and he was able afterwards to swallow three cups with much less difficulty. But towards evening he died." At Sudbury, Dr. Maclean relates, partial friction in one case was employed for about an hour, until an oil bath could be procured. In this the patient remained ten minutes; when that uneasiness, that horror, which hydrophobics constantly express at the *touch* of every thing *fluid*, whether hot or cold, irresistibly caused him to spring from out the hogshead in which the oil was contained, with an agility that astonished all around; soon after which he died. Dr. Shadwell of Brentwood had also a case, where the patient's body was anointed with oil; and the attempt being made to administer it internally, a clyster of mutton-broth and oil, as a succedaneum, was employed; but the patient in no wise seemed benefited.

at Smyrna, and with the happiest success. The body was rubbed all over with tepid olive oil. A wine-pint was esteemed a cure.

It is a curious coincidence, that the use of oil is mentioned in sacred writ. "Let the sick be anointed with oil, and saved." The Caffres, who constantly smear the body with lard, or oil, remain free from the yellow fever; and the Esquimaux tribes, who also regale on seal oil, remain also free; and when the plague raged in London, tallow-melters and butchers were found exempt.

Instead of clogging up the pores, as might be suspected by some, the pores became open, and the consequence of the oil was to produce a salutary sweat.

I know but of one case where this remedy was tried in our common typhus, or putrid fever. Being requested, says Dr. Fothergill, to visit a poor boy named Thomas Countey in a wretched lodging in a narrow alley in Bath, on the sixth day of a fever, I found the surface of the body discoloured with purple *petechiæ*; attended with great prostration of strength, low tremulous pulse, inquietude, delirium, &c. Though these symptoms, and the advanced state of the disease, seemed to preclude all hopes of success from either internal or external remedies; yet, rather than abandon him to despair, the whole body was directed to be rubbed with olive oil every four hours, if strength would permit, and its operation to be aided by warm whey, accompanied by a suitable diet of gruel, and arrow-root, and he took a moderate dose of castor oil, as coinciding with the general plan. After some time his parched skin became moistened, and at length he broke out into a full perspiration. By continuing this simple plan all the alarming symptoms subsided, the purple spots vanished, and his recovery was speedy beyond my expectation.

No sooner, continues Dr. Fothergill, had the lad recovered, when the poor woman, his mother, who nursed him through the illness, was seized with evident symptoms of having caught the infection. The above-mentioned process being instantly performed, and having now much less difficulty to encounter, this new plan was very speedily and strikingly crowned with success.

Dr. Oliver* relates (Philosophical Transactions, vol. xlix. p. 49)

* An eminent physician of Bath, who wrote on the Bath waters.

that oil rubbed over the body he found of great service in dropsies, especially Ascites; this from the supposed absorption of water from the atmosphere, which is thought to influence this disease.

This practice is worthy of consideration, for the oil softens the skin, and lessens the inflammation produced from distension *.

Woodville says, that oil is good in nephritic complaints, spasms, colics, worms, &c.; but in this he only follows the fanciful enumeration of virtues so profusely given to several articles in the Materia Medica.

Oil, and fats of all kind, and butter are supposed bad against the bile †: but by bile is meant a weak state of the stomach, and when an acidity prevails there, the oil becomes rancid, and this is known to disorder most stomachs.

PREPARATIONS.

Oil is usefully employed in clysters, to soften indurated fæces, and make them pass easy, as in the common domestic clyster, a tea-spoonful of salt, a dessert-spoonful of olive oil, and half-a-pint of warm gruel.

Oil united with alkali forms soap, and where there is a defect of bile, pills of Castille soap, four or five, with a little rhubarb, have produced great benefit.

Oil enters into the composition of several ointments, as the following:

The Wax Ointment (Unguentum Ceræ, olim Unguentum album, P. L.):

Take of white wax, four ounces,
——— spermaceti, three ounces,
——— olive oil, a pint:

Mix them together over a gentle fire, and then stir them very briskly, without ceasing, till they are cold.

And in what the Royal College call the Ointment of Spermaceti (Unguentum Spermaceti, olim Linimentum album,), which is thus ordered:

Take of spermaceti, six drachms,
——— white wax, two drachms,
——— olive oil, three ounces:

* The usual remedies for the dropsy are to be employed at the same time.

† Bile is a composition of oil and alkali, a kind of soap; and the use of the omentum seems to be to furnish fat or oil for the composition of bile, so little is the bile injured by oil.

Melt all together over a gentle fire, stirring briskly, without intermission, till the ointment becomes cold.

Also in their Cerate of Spermaceti (Ceratum Spermatis Ceti): thus,

Take of spermaceti, half an ounce,
——— white wax, two ounces,
——— olive oil, four ounces:

Melt them together, and keep stirring them till the cerate cools.

Also in the Ointment of Acetated Ceruse (Unguentum Cerussæ acetatæ, olim Unguentum Saturninum, P. L.):

Take of acetated ceruse, two drachms,
——— white wax, two ounces,
——— olive oil, half a pint:

Rub the acetated ceruse into a powder with some part of the oil; then add this to the wax after it has been melted along with the rest of the oil, and stir the mixture till it is cold.

And in the Cerate * of Acetated Litharge (Ceratum Lithargyri acetati, P. L.):

Take of the water of acetated litharge, two ounces and a half,
——— yellow wax, four ounces,
——— olive oil, nine ounces,
——— camphor, half a drachm:

Rub the camphor with a little of the oil; dissolve the wax with the rest of the oil; and as soon as they begin to thicken, add the water of acetated litharge, and keep stirring till they cool; then mix the camphor which had been rubbed with the oil.

These softening ointments and cerates are supposed only to supple the parts, and hinder the rag or lint from sticking to the granulating flesh; for which purpose oil is spread over bread and milk poultices, or the poultice of linseed-meal, being soft unirritating applications to the part; and they are thought also to keep the air from wounds, which is known to irritate them, from the oxygen in the air, but to have otherwise no peculiar healing virtue.

* *Ointments*, *Liniments*, and *Cerates* differ principally from plasters in their consistency. A plaster reduced by the addition of oil to the consistence of honey will form an ointment, and by softening it with more oil it becomes then a liniment. Cerates have a stiffer consistency than either. All these kinds of compositions should be melted down with a gentle heat, and are commonly spread on soft linen rag, or lint.

The following is supposed to be drawing, the Ointment of Yellow Rosin (Unguentum Resinæ flavæ, olim Unguentum Basilicon flavum, P. L.):

Take of yellow rosin,
——— yellow wax, a pound of each;
——— olive oil, a pint:
Melt the rosin and wax with a gentle heat; then add the oil, and strain the mixture while yet warm.

This plaster is employed for the dressing of broken chilblains, and other sores that require stimulating: it is also used to drive milk away, being placed over the tumid breasts when the child is weaned.

The following is known by the vulgar name of Turner's Cerate, as curing the wounds of Turners, and is good in broken chilblains, the Cerate of Calamy (Ceratum Lapidis Calaminaris, olim Ceratum Epuloticum, P. L.):

Take of prepared calamy,
——— yellow wax, half-a-pound of each;
——— olive oil, a pint:
Melt the wax with the oil, and as soon as they begin to thicken, sprinkle in the prepared calamy, and keep it stirring till the cerate is cool.

It enters into the composition of the mild and strong liniments of ammonia: thus,

Liniment of Ammonia (Linimentum Ammoniæ, olim Linimentum volatile, L. P.):

Take of water of ammonia, half-an-ounce;
——— olive oil, an ounce and a half:
Mix by shaking them in a phial.

Strong Liniment of Ammonia (Linimentum Ammoniæ fortius, L. P.):

Take of pure water of ammonia, an ounce;
——— olive oil, two ounces:
Mix by shaking them in a phial.

These are used as gently stimulating affected parts, to invite the blood to those parts, and have been found of service in rheumatism of the chronic kind, in paralytic affections, white swellings, gouty attacks in the joints likely to recede, &c.

The oil moderates the too highly stimulating effects of the ammonia, and hence it usefully enters into compositions with turpentine; which see under that article.

VERONICA BECABUNGA.

BROOKLIME, OR WATER-SPEEDWELL.

Class II. Diandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* four-cleft, wheel-shaped, with the under *Segment* narrower: *Capsule* superior, two-celled.

Spec. Char. *Racemes* lateral: *Leaves* elliptic flat: *Stem* creeping.

DESCRIPTION.

It is a very beautiful plant when in flower; its stalks are round, thick, and succulent, and grow to ten inches or a foot in length; but they do not stand entirely erect, but are procumbent in part, and often take fresh root at the joints, where they touch the ground. They are sometimes single, often branched, and when cut through appear of a spongy nature. The leaves are oblong, rounded at the ends, and serrated about the edges; they stand in pairs, two at every joint of the stalk opposite to each other; they are near an inch long, smooth on the surface, and somewhat glossy, of a thick substance, and of a dark or blackish green colour. From the alæ of these leaves there arise pedicles one on each side; these are three inches long, or thereabouts, and are each ornamented with a long series of flow-

ers of a beautiful sky-blue colour, divided into four segments at the edge, and are succeeded by small seed-vessels, flat and of a kind of cordated form, in which are lodged a number of small seeds in two cells. The root is small and creeping, and of a white colour. It grows in great abundance with us, the companion of water cresses, and propagates itself very quickly by the spreading of its root.

HISTORY.

This plant is thus described in the New Edinburgh Dispensatory:

This is a low perennial plant, common in little rivulets and ditches of standing water, and flowering in July. The leaves remain all the winter, but are in greatest perfection in the spring. Their taste is herbaceous, with a very light bitterness *.

MEDICAL USE.

If any good effects be expected from brooklime, it should be used as food.

As having a bland mild juice, its leaves form a proper corrective of fiery vegetables, whose pungency these tend to lessen, and the juice of the whole herb not improperly enters into the composition of the Compound Juice of Scurvy-grass (Succus Cochleariæ compositus, olim Succi Scorbutici, P. L.), which see under the article Scurvy-grass, as a bland corrective, yet not as having much medicinal virtue.

Rutty says that its juice is saponaceous, and taken in a large quantity opens the body in the easiest manner.

Dioscorides mentions a use that deserves the attention of modern practitioners. "Folia in vino pota, stranguria et vesicæ scabie laborantibus opitulantur;" its leaves drunk in wine relieve the strangury, and diseases of the bladder.

The juice is said neither to turn sour or putrid by keeping, and can be only esteemed as a mild refrigerant.

* Authors report, "calculum renum et vesicæ expellit, menses ciet, fœtum mortuum ejicit!" So filled with lies are the Materiæ Medicæ!

GRATIOLA OFFICINALIS.

HEDGE-HYSSOP.

Class II. Diandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* seven-leaved, the two outer patulous: *Corolla* irregular, reversed: *Stamina* two barren: *Capsule* two-celled.

Spec. Char. *Leaves* lanceolate, serrate: *Flowers* peduncled.

DESCRIPTION.

The stalks of this plant are erect, and have frequent knots or joints; they rise to ten or twelve inches high: the leaves stand in pairs at the joints, are of an oblong figure, an inch in length, and more than half an inch in breadth: they are smooth, and extremely bitter to the taste: from the alæ of these leaves arise flowers standing singly; they are tubular, consisting of a single petal, and perforated behind. In their hind part they are bent like a horn, and of a yellow colour, striped with brown streaks; they are two thirds of an inch in length, and about a quarter of an inch in diameter, and at the front are divided into two lips of a pale purplish colour, standing far asunder: the upper lip is of the shape of a heart, and bent upwards: the lower one is divided into three segments; the cup is divided into five segments, and the flower is succeeded by a single fruit of a roundish figure, but pointed, of a pale purple colour, divided into two cells and filled with minute seeds.

HISTORY.

This plant is thus described in the New Edinburgh Dispensatory: This is a perennial plant, a native of marshy situations in the south of Europe. It is gathered for use when in flower. It has no smell, but a very bitter, somewhat nauseous taste. It is a drastic purgative and emetic, and a very powerful anthelmintic, but its use requires caution. In substance it may be given to the extent of half a drachm, and in infusion to three drachms.

ADDITIONAL REMARKS.

The Gratiola flowers in June or July, continuing till August or September. It was introduced into our gardens by Gerard in 1568. It has no smell. The leaves, which are the parts used in medicine, are intensely bitter, slightly astringent, and have some degree of pungency in them; they impart their medicinal virtue to both water and spirit. An extract may be also formed. Woodville, like Dr. Duncan jun., has been extremely short and defective in his account of the virtues of this plant. After Cullen, he says, "that like the other verticillate plants, this acts as a stimulant, from the essential oil it contains, and hence is recommended as a remedy against *hysteria*, and to promote the courses. It is good in fomentations for contusions, and for removing blackness from extravasated fluids; and is used as a pectoral, being made into tea, and sweetened with sugar or honey."

Such is his account of a poisonous remedy very much resembling in virtues the Digitalis. Miller speaking of this plant says, "that it is of rugged curlish nature." Hoffman, with others speaking of this plant, says, "Non tantum per inferiora, sed et superiora purgat, et tam violenter, ut quidam helleboro, quidem pityusæ."—"That it vomits upwards and downwards, and so violently, that it is compared to hellebore, or some other drastic purge."

Alston, speaking of this plant, says, that "it acts as an acrid and violent purgative and emetic, and evacuates phlegmatic, bilious, and watery humours; hence it is extolled in jaundice, asthmas, dropsies, and agues." Haller mentions its use in epileptic fits, in which we have found the digitalis useful. Geoffroy says, that it is so rough a purge, that it is only fit to be given to strong people, and that it frequently occasions violent pains of the bowels, and an overpurging in young persons.

Having ascertained the nature of this plant, we shall find reason for its application in medicine.

Boerhaave has given this plant its true character: "Efficax remedium est in humoribus aquosis, lentis, biliosisque specificè evacuandis, quos vel ex remotissimis partibus trahit, atque tum per secessum, tum per vomitum expurgat. Hinc magnus ejus usus esse poterit in hydrope, ictero flavo, &c. Et quia amaritudine insuper dotata est insigni fugat lumbricos, eorum saburram expurgat. Corrigitur cinnam. sem. anisi, glycyrrhiza, &c. Dosis foliorum pulv. dr. 1. infusorum ad dr. 2. extr. scr. 1."

That is, "this plant is excellent for the evacuation of bile and water, and for expelling worms."

For dropsies the dose is from ten grains to half a drachm of the dried leaves in powder, and I have seen it relieve water in the chest. Nausea was induced, often vomiting, and always purging.

The best mode of ordering it is to put two drachms of the fresh leaves, or a drachm of the dried, to five or six ounces of boiling water, and let it infuse during the night; then strain it off in the morning, and form it into an emulsion, by triturating six blanched almonds with it, afterwards adding to it an ounce of syrup of violets, or althea, and to repeat a table-spoonful every hour until it vomits or purges.

Bergius mentions that ten grains of the powder mixed with five of gentian root, in some cinnamon water, given every two hours, until it vomited or purged, or both, was of great service in bilious autumnal or putrid fevers; and there is no doubt, by thus evacuating the *primæ viæ*, this success was not an idle boast. Vide our Philosophy of Medicine, vol. iii.

Bolduc says that he found the root of this plant in powder, given in half a drachm for a dose, as good a specific in dysentery as the ipecacuanha, when the disease had not proceeded too far, it being astringent as well as bitter.

Kostrewiski, a Polish physician, has mentioned some extraordinary facts relative to the virtues of this plant. He relates, that given in the dose of half a drachm (in the morning) it had a remarkably good effect in several maniacal cases; and that an extract made from this herb had cured symptoms of the venereal disorder, the ozena, ulcers of the throat, nodes, &c., even where mercury seemed to do no good, but harm. The medicine was thus prepared:

Take of the extract of gratiola, a drachm,
——— white sugar, two drachms and a half,
——— crabs' eyes prepared, an equal quantity,
——— fennel seeds, in powder, a drachm:

Ten grains of this was given three times a day; the dose was increased to double the quantity by degrees, and continued for ten or more weeks.

It usually excited some nausea, a copious flow of urine, several motions, and in some instances salivation.

After such accounts, surely, this plant merits much consideration, and a further trial.

COMMON ROSEMARY.

ROSMARINUS OFFICINALIS.

Class II. Diandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* unequal; upper lip two-parted: *Filaments* long, curved, simple with a tooth.

Spec. Char. *Leaves* sessile.

DESCRIPTION.

Rosemary flowers are small, but they are not without their beauty. They are of the labiated kind, and consist of one petal divided into two parts, gaping widely from one another at the mouth, or opening. The one of these, which is placed upwards, is turned somewhat back, and is divided again into two, and makes as it were two horns; the lower part is again divided into three segments, and the middle one of these is hollowed in form of a spoon, and has at its extremity a fissure or little nick, dividing it into two in that part. The whole flower is of a pale blueish, or grayish white, and of an extremely fragrant smell and aromatic taste. It is not a native of England, but is cultivated every where with us.

HISTORY.

Rosemary is a perennial shrub, which grows wild in the south of Europe, and is cultivated in our gardens. It has a fragrant smell, and a warm pungent bitterish taste, approaching to lavender; the leaves and tender tops are strongest; next to these the cup of the flower; the flowers themselves are considerably the weakest, but most pleasant.

MEDICAL USE.

Its virtues depend entirely on its essential oil, which seems to be combined with camphor, not only from its peculiar taste, but from its possessing chemical properties which depend on the presence of camphor; and from its depositing crystals of camphor when long kept.

This plant, like many others, has obtained a celebrity which it little merits. Like lavender, it may gently stimulate the system, and is a mild cordial: but it has no claim to any of those high encomiums bestowed upon this simple herb. Boerhaave says, "in affectibus capitis et nervorum, apoplexia, epilepsia, paralysi, vertigine, caro, &c. visum acuunt; fœtorem anhelitus emendant; hepatis, lienis, et uteri obstructiones resolvunt. Ictero et fluori albo mulierum medentur, corque confortant."

After this encomium from so distinguished a physician, we cannot wonder at seeing in poets,

"There's rosemary; that's for remembrance."

SHAKSPEARE.

So speaks Ophelia. Perdita thus alludes to it:

"————————Reverend sirs,
For you there's rosemary and rue; these keep
Seeming and savour all the winter long:
Remembrance and grace be to you both."

SHAKSPEARE.

This quality rendered it a fit present of the lover. Thus in a sonnet in 1584:

"Rosemary is for remembrance
Betweene us daie and night;
Wishing that I might alwaies have
You present in my sight."

Its smell is certainly reviving, and this is found particularly in what is denominated the *queen of Hungary's water*, which smelt to on the handkerchief greatly relieves a headache, or if sprinkled on the forehead. It is made thus:

PREPARATIONS.

Take of the flowers of rosemary, two pounds;
——— rectified wine, four pounds:
Distil in a water-bath. This is common Hungary water. The London College order a spirit, which answers a similar purpose, it is called

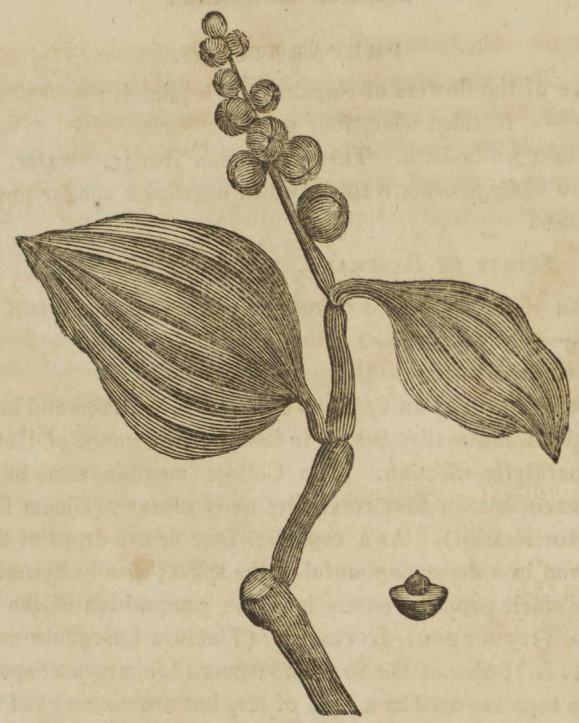
SPIRIT OF ROSEMARY. (Spiritus Rorismarini.)

Take of the fresh tops of rosemary, a pound and a half;
——— proof spirit, a gallon:
Distil off in a water-bath, five pints.

This is useful as an outward application in strains and bruises, and, given internally, is said to have cured a queen of Hungary of a paralytic affection. The College mention also in their Pharmacopœia an ESSENTIAL OIL OF ROSEMARY (Oleum Essentiale Rorismarini). As a cephalic, four or five drops of the oil are given in a dessert-spoonful of the spirit; also in hysterics.

The spirit properly enters into the composition of the COMPOUND TINCTURE OF LAVENDER (Tinctura Lavendulæ composita, P. L.); also of the SOAP LINIMENT (Linimentum Saponis).

The tops are used as a kind of tea, but are not so good as the sage tea for domestic use.



BLACK PEPPER.

PIPER NIGRUM.

Class II. Diandria. *Order* III. Trigynia.

ESSENT. GEN. CHAR. *Calyx* none: *Corolla* none: *Berry* one-seeded.

SPEC. CHAR. *Leaves* ovate, seven-nerved, smooth: *Petioles* very simple.

DESCRIPTION.

THE stem is jointed, and forked, of a green colour but woody texture, climbing like the hop, or trailing upon the ground. When running along the ground, at every joint they send out roots. The leaves stand singly, and are roundish, and of a firm texture, each having seven nerves, of a dusky green on the upper side, and of a paler green underneath, standing on short petioles. The flowers are small and monopetalous, divided into three segments at the end, having no peduncles, but are placed in a

cluster on the stalk. The fruit which succeeds is a berry: twenty or thirty are seen crowding one stalk, at first green, then red, and afterwards black, but white internally.

HISTORY.

Sp. 1. The black pepper is the fruit of a shrubby creeping plant, which grows wild in the East Indies, and is cultivated, with much advantage to the fruit, in Java and Malabar. The berries are gathered before they are ripe, and are dried in the sun. They become black and corrugated on the surface; their taste is hot and fiery, and their smell slightly aromatic.

Neumann got from 7680 parts 4800 watery, and afterwards 180 alcoholic extract; and inversely, 1080 alcoholic and 3640 watery. The principle on which its pungency depends, was soluble both in water and in alcohol, and was not volatile, for 7680 grains furnished about 150 of a very bland volatile oil. From this analysis Dr. Thomson's differs remarkably. By macerating it in alcohol, and distilling the tincture, he got a green volatile oil, having the whole flavour and pungency of the pepper. Besides this essential principle, he found it to contain an extractive and starch.

Sp. 2. White pepper is the fruit of the same plant gathered after it is fully ripe, and freed of its external coat by maceration in water. It is smooth on the surface, and less pungent than the black pepper.

Sp. 3. Piper Cubeba.

Cubebs are brought from Java. This fruit has a great resemblance to black pepper. The most obvious difference is, that each cubeb is furnished with a long slender stalk, whence they are called by some *piper caudatum*. In aromatic warmth and pungency, cubebs are far inferior to pepper.

Neumann got from 960 grains, 310 alcoholic and 272 watery extract; and inversely, 380 watery and 61 alcoholic. It also furnishes some volatile oil.

The warmth and pungency of these spices are said to reside entirely in a resin; their aromatic odour in an essential oil. In medicine, they are sometimes employed as acrid stimulants; but their chief use is in cookery, as condiments.

MEDICAL USES.

All these different kinds of pepper contain an essential oil, and fixed resinous and gummy principles, but the fiery acrid

particles seem principally to reside in the resinous parts: for Cartheuser observes, "that from a pound of black pepper a drachm or two of essential oil may be obtained." Authors differ about the exact quantity, some mentioning a drachm, others three drachms; and this essential oil, though it smells strongly of the pepper, yet has but little acrimony; and a watery infusion, though it extracts a great quantity of gummy or mucilaginous parts, three or four drachms from an ounce, yet has little or no acrimony unless it carries some of the resinous particles along with it: but a tincture drawn with the spirits, though it extracts only about a drachm and a few grains from an ounce, yet is so fiery and hot, that a few drops of it set the mouth as it were in a flame; and after this tincture is drawn, whatever is obtained afterwards is always quite mild and inert. To show how much the virtues of pepper lie in the resinous particles, if some black pepper be boiled in fresh parcels of water, it will not have lost its flavour, but impart it to the water even to the forty-third boiling.

We may here remark, that pepper, infused in water, impregnates the menstruum pretty strongly with its flavour, but weakly with its taste: by boiling for some time, a little more of its pungent matter is extracted, and its flavour dissipated. On collecting the fluid that exhales in the boiling, the water is found agreeably impregnated with the odour of the spice, but scarcely discovers any taste: the essential oil, which rises to the surface of the water, is thin, light, and limpid, with a strong agreeable smell, and of a mild taste; a drop or two on the tongue imprints only a moderate grateful warmth. On inspissating the decoction, a part of the pungency of the pepper is found in the mucilaginous extract, for a larger part is retained by the pepper itself.

The tincture, on the contrary, is extremely hot and fiery, a few drops producing a most violent effect. Inspissated it leaves an extract still more fiery. The quantity of the extract from both the black and white pepper is the same, but that from the white is weaker than from the other.

In fact, the common white pepper usually met with is spurious, and only prepared from the black in the Indies. They steep the black pepper-corns in sea water, exposed to the heat of the sun for several days, till they find the arillus, or outer coat, loose on it; this they remove, and it appears afterwards white. As much of the acrid qualities of the pepper resides in this coat, it is no wonder that the white pepper is found to be the mildest of the two.

Sir John Hill mentions, in his Materia Medica, that there are actually plants which produce a true white pepper, and that the genuine fruit is sometimes imported to us; but it is most probable, that this is only when the berries of the black pepper, having become too ripe, drop upon the ground, and by a natural process are deprived of their covering. It is to be considered as an inferior kind; but is sold at treble the price of the other.

Respecting pepper as a medicine, it cannot be doubted that it has a warm cordial effect upon the stomach: but as it does not dispose the blood to attract more oxygen; therefore it does not inflame it, and hence accelerates not the circulation. But it invigorates the powers of digestion, stimulates the fauces to pour out an abundant supply of saliva, and the stomach the gastric solvent, and finally the bowels to a better peristaltic motion.

It is mostly used as a corrective of the coldness and flatulence of a vegetable diet, and seems admirably suited for warm climates, where the food is naturally aqueous, and of a cold nature. Hence we use it with most vegetables, especially cucumbers and peas. It serves as a condiment to fish. In gout, dropsy, rheumatism, cold phlegmatic habits, the use of pepper is advisable, and taken in a large dose is said to cure intermittents. In incipient quinsies, before the tumour has broken, a bason of gruel well seasoned with pepper, taken at bed-time, will resolve, it. The free use of pepper comes naturally recommended in palsy.

OFFICINAL VALERIAN, E. P.

VALERIANA OFFICINALIS, P. E.

WILD VALERIAN, L. P.

VALERIANA SYLVESTRIS, P. L.

Class III. Triandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* none: *Corolla* monopetalous, gibbous on one side at the base, above.

SPEC. CHAR. *Flowers* bearing three stamina: *Leaves* all pinnate.

DESCRIPTION.

THIS plant grows to three feet or more in height; its leaves stand in pairs, and are large, hairy, and of a dusky green, divided down to the middle rib, so as to appear to be made up of many small leaves affixed on the two sides of a stalk, or may be said to be pinnate: the flowers stand in large tufts at the tops of the branches, and are of a pale whitish red colour: some of the species vary in the number of stamina, and are succeeded each by a single seed winged with down.

HISTORY.

This plant is perennial, and varies in its appearance and sensible qualities, according to the situation in which it grows. In

marshes and shady places its leaves are broader, on dry heaths and high pastures they are narrower. The roots produced in low watery grounds have a remarkably faint smell in comparison of the others, and sometimes scarcely any. The roots taken up in autumn or winter have also much stronger sensible qualities than those collected in spring and summer.

The root consists of a number of strings or fibres matted together, issuing from one common head, of a whitish or pale brownish colour.

Its smell is strong, like a mixture of aromatics with fetids; the taste unpleasantly warm, bitterish, and subacrid.

Neumann got from 480 grains of the dry root 186 alcoholic and 74 watery extract; and inversely, 261 watery and 5 alcoholic. The distilled alcohol was slightly, the water strongly, impregnated with the smell of the Valerian, but no separable oil was obtained.

MEDICINAL USE.

Wild Valerian is a medicine of great use in nervous disorders, and is particularly serviceable in epilepsies proceeding from a debility of the nervous system. Some recommend it as procuring sleep, particularly in fever, even when opium fails; but it is principally useful in affections of the hysterical kind.

The common dose is from a scruple to a drachm in powder; and in infusion, from one to two drachms. Its unpleasant flavour is most effectually concealed by a suitable addition of mace.

As its virtues reside entirely in an essential oil, it should not be exhibited in decoction or watery extract.

So far the Edinburgh Dispensatory.

Valerian is supposed to be the φυ, Phu, of Dioscorides and the ancients, from the Greek word φυ, abominable, on account of its horrid smell; although so extremely agreeable to cats, that the labels in apothecaries' shops are scratched off by them; and it is said also to attract the rat.

Fabius Columna, an Italian nobleman, engaged in political affairs, had an epilepsy from his birth, which the physicians were unable to cure. Being entirely worn out with the disease, he began the study of the ancient botanical writers, and in his research found that it was cured by the Valerian root. Hence he began the trial, and was soon completely restored. He became a famous botanical writer, illustrating his work

with admirable plates; and he mentions that by the same means he had cured several others labouring under the same disease. He advises to gather the root before the time of flowering, to reduce the same into powder, and take it in water, wine, or milk, on six successive mornings, on an empty stomach; whence sweats will break out, and often the bowels will become relaxed; which are excellent signs.

Dominicus Panarolus, fifty years afterwards, reports that he cured three cases of epilepsy. To these may be added many other instances of good effects in this disease, published by Cruger, Schuckman, Riverius, Sylvius, Marchant*, Chomel, Sauvage, Tissot, and Haller.

Whytt, who joined its exhibition with manna, experienced its good effect in epilepsy.

Fordyce recommends it highly in *hemicrania*, a pain affecting one side of the head only.

Camerarius asserts that he found it very serviceable in jaundice, also in asthma, in which latter disease he accompanied it with a grain of opium.

Cullen mentions that it is serviceable in hysteric and other spasmodic affections; and where it failed of producing any good, it arose from these disorders not being primary nervous affections, or from the badness of the drug †. Haller mentions also his success in hysteria. Boerhaave pronounces that it is good against all diseases of the thorax, stomach, and uterus, wonderfully increasing the discharge from the latter, when too sparing, using an ounce or two of the bruised root as tea, sweetened with honey: he likewise mentions that it is an excellent vermifuge.

He adds, that if the fresh leaves be bruised with wine and applied to the parts, it is excellent in contusions; that thus it dissipates scirrhous tumours without suppuration, and, when suppuration has taken place, soon makes them heal: hence the common people always apply them in sordid ulcers.

Morgan relates, that mixed with guaiacum, even only outwardly applied, it has a singular efficacy in glandular obstructions.

Applied outwardly, the leaves are said to strengthen the sight‡,

* He used to give a drachm and a half of the powder for a dose.

† Being gathered after the spring season was past.

‡ Haller relates that his sight was considerably amended, which was weak, and accompanied with motes flying before the sight in the left eye, by taking three times a day, during fifteen days, two drachms of the powder of Valerian.

and remove specks on the eyes (maculas oculorum abstergit); and as an amulet there are people who think it successful against the ague (adsunt auctores qui radicem pro amuleto febris quotidianæ habent, eamque collo in hunc finem suspendunt). Boerhaave.

According to Boding, it is useful in tenesmus.

If we take the opposite side, Woodville says that it has been given in the extent of two ounces a day without effect, and "from our own experience we are warranted in saying it will be seldom found to answer the expectation of the prescriber."

As far as my practice has gone, I have found it successful in several cases of epilepsy, and a good nervous medicine; and in phthisis pulmonalis (consumption) a tea made of it for breakfast has done considerable service. It merits yet a place in the Materia Medica, but what rank remains to be explored. The oil of Valerian deserves a trial in epilepsy, being said to have produced several extraordinary cures.

PREPARATIONS.

The Royal London College directs only the following tinctures:

Tincture of Valerian. (Tinctura Valeriana.)

Take of wild Valerian root, grossly powdered, four ounces;
——— proof spirit, two pints:
Digest with a gentle heat for eight days, and strain the tincture.

Volatile Tincture of Valerian. (Tinctura Valerianæ volatilis.)

Take of wild Valerian root, four ounces;
——— the compound spirit of ammonia, two pints:
Digest for eight days, and strain the tincture. The dose is half a drachm to half an ounce three times a day in any convenient vehicle. In my formulæ I am in the habit of ordering the powder, tincture, and compound tincture, in the same mixture, with the addition of the camphorated mixture.

Valerian is usefully directed as an electuary thus:
Take of wild Valerian, in powder, one ounce;
——— syrup of orange peel, as much as is sufficient to make an electuary, of which give one or two small tea-spoonfuls three times a day in a glass of simple peppermint water.

SAFFRON.

CROCUS SATIVUS.

Class III. Triandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* six-parted, equal: *Stigmas* convolute.

SPEC. CHAR. *Spathe* one-valve, radical: *Corolla* possessing a very long tube.

DESCRIPTION.

THE root is a small bulb standing upon a larger, with a multitude of fibres growing from the base. Four or five leaves arise from the root, of a dark green, narrow, and grassy, about five or six inches long; from the same root arises a stalk four inches high, sustaining a single flower resembling the Crocus. It has three stamina with yellow anthers, and in the centre a long pistillum, which at top divides into three cristated fleshy capillaments of an orange colour, which is the part used in medicine.

HISTORY.

The Crocus Sativus* is a bulbous-rooted perennial plant, probably a native of the East, although it is now found wild in England and other temperate countries of Europe. It is very generally cultivated as an ornament to our gardens, and in some places for the Saffron, which is formed of the dried summits of the pistil. Each flower has one pistil, the summit of which is deeply divided into three slips, which are of a dark orange-red colour, verging to white at the base, and are smooth and shining. Their smell is pleasant and aromatic, but narcotic; their taste a fine aromatic bitter, and they immediately give a deep yellow colour to the saliva when chewed. The flowers are gathered early in the morning, just before they open; the summits of the pistils are picked out, very carefully dried by the heat of a stove, and compressed into firm cakes*. The English Saffron is superior to what is imported from other countries, and may be distinguished by its blades being broader. On the continent they reckon the Austrian and the French from Gatinois the best. The Spanish is rendered useless by being dipt in oil, with the intention of preserving it. Saffron should be chosen fresh, not above a year old, in close cakes, neither dry, nor yet very moist; tough and firm in tearing; difficultly pulverizable; of a fiery orange-red colour within as well as without; of a strong, acrid, diffusive smell; and capable of colouring a very large proportion of water or alcohol. Saffron which does not colour the fingers when rubbed between them, or stains them with oil, has little smell or taste, or a musty or foreign flavour, is too tender, and, if it has a whitish, yellow, or blackish colour, is bad. It is

* It is a doubt how this merits the title of Sativus, when its propagation is by the offsets from the root, the seeds hardly ever arriving at perfection, —unless by sativus is meant *cultivated*.

* The Saffron in England is chiefly cultivated in Cambridgeshire, and at a place called from that circumstance Saffron Walden. In the autumn when the flowers appear, they are gathered every morning, and spread upon a table; the stigmata, along with a portion of the style, are then picked, and the rest of the flower thrown away as useless. The stigmata being thus collected in sufficient quantity are then dried, which is effected by means of portable kilns, of a peculiar construction, over which a hair cloth is stretched; and upon this are placed a few sheets of white paper, on which the stigmata are strewed, about two or three inches thick, and then covered with several sheets of paper, over which is laid a coarse blanket, five or six times folded, or a canvass bag filled with straw; and when the fire has heated the kiln, a board, on which a weight is put, is placed upon the blanket in order to press the Saffron into a cake. For the first hour a pretty strong fire is employed; the Saffron is then found to be formed into a cake, which, after being turned, is subjected for another hour to the same degree of heat: it is then turned a second time, and a more gentle heat is applied for about twenty-four hours, or till the cake becomes dry, during which time it is turned every half-hour.

said that it is sometimes adulterated with the fibres of smoked beef, and with the flowers of the carthamus tinctorius, calendula officinalis, &c. The imposition may be detected by the absence of the white ends, which may be observed in the real Saffron, by the inferior colouring power, and by the want of smell, or unpleasant smell when thrown on live coals.

By distillation with water Saffron furnishes a small proportion of essential oil, of a golden yellow colour, heavier than water, and possessing the characteristic smell in an eminent degree. According to Hermbstaedt, the soluble matter of Saffron is extractive nearly pure. Neumann obtained from 480 dried Saffron 360 grains of watery extract which was soluble in alcohol, except 24 of a colourless matter like sand, and afterwards 20 of alcoholic; and inversely, 320 of alcoholic extract entirely soluble in water; and then 90 of watery.

On account of the great volatility of the aromatic part of the Saffron it should be wrapt up in bladder, and preserved in a box or tin case.

MEDICAL USE.

Saffron is a very elegant aromatic: besides the virtues which it has in common with all the bodies of that class, it has been alleged that it raises the spirits, and in large doses occasions immoderate mirth, involuntary laughter, and the other effects which follow from the abuse of spirituous liquors. It is said to be particularly serviceable in hysteric depressions, or obstructions of the uterine secretions, where other aromatics, even those of the more generous kind, have little effect. But the experiments of Dr. Alexander, and Dr. H. Cullen, show that it is much less powerful than was once imagined; so that of late the estimation in which it was held as a medicine has been on the decline.

Such is the judicious account of this drug in the Edinburgh New Dispensatory; and we agree with them, that it must rather be considered as an *adjuvant*, than as possessing any very powerful virtues.

Dr. Cullen is of the same sentiment. Although the sensible qualities of this substance, says this veteran practitioner, are pretty considerable, yet it appears to us to possess no other power than simply being an aromatic.

Rhazes confirms our opinion, for he relates giving from two to three drachms at a time with safety; and Etmuller tells us of the people in some parts of Poland using it as a condiment, consuming an ounce of it at a time.

From the experiments of Dr. Alexander it would seem that Saffron possesses but very little active powers, and may be taken in considerable quantities without producing any remarkable effect; and it was but lately given at the Edinburgh Infirmary, by Dr. Henry Cullen, even to the extent of half an ounce a day, in several hysterical cases, without any sensible effect whatever.

It is asserted by Dioscorides and Avicenna, that taken to the extent of three drachms it is a deadly poison; and the great Boerhaave gives it the following most extraordinary character:

" Hæc planta est cordialis, aromatica, pectoralis, anodyna, hypnotica, alexiterica, et aperiens; nam habet vires integre dissolvendi sanguinem; et vidi fœminas defluxisse ab usu nimio croci per menstrua, et viros per hæmorrhagiam narium; dein quoque homines reddit ebrios: sic vidi casum, in quo medicus dederat viro morbo melancholico laboranti crocum nimis magnâ copiâ, qui inde in delirium perpetuum cum risu incidit, et ille non nisi aceto curabatur: hinc debemus nos abstinere a nimio usu hujus herbæ: verum si defectus sit spirituum, si dissolvendi humores, si bilis iners, ejusque defectus est supplendus, tum quidem cum prudentia crocus datus convenit, aliter nocet: in asthmate tamen convulsivo, tussi dyspnœa, phthisi, roborando et exhilarando corde, in mensium, lochiorum et fœtus remora, et ictero conducit: frontalibus admotus phrenitidem, maniam et cephalalgiam a frigido ortam tollit; in syncope et palpitatione cordis externe ventriculo applicatus eum roborat, membris paralyticis et induratis impositus mire discutit; crocus in aqua rosarum infusus prodest in variolis ad oculos lavandos. Hæc planta etiam conducit in colica."

" This plant is cordial, aromatic, pectoral, anodyne, hypnotic, alexiteric, and aperient. It possesses the power of wholly dissolving the blood; and I have seen women go into decline, by the too liberal use of Saffron, owing to their immoderate menses; and men by the loss of blood from the nose: it moreover renders people intoxicated, a case of which kind I saw, from the physician giving to a hypochondriac too great a quantity of Saffron, which produced a continued delirium with laughter, and he was cured only by an acid. Hence the necessity of caution in the use of this remedy. But if there be a defect of animal spirits, if the humours be thick, and the bile inactive, and this is to be altered, then it is proper to employ Saffron, otherwise it injures. In convulsive asthma, cough with difficulty of breathing, phthisis, for strengthening and exhilarating the heart, where there is delay

in producing the menses, lochia, or fœtus, and in jaundice, it is beneficial. Applied to the forehead it has removed phrensy, mania, and headach, arising from a cold phlegmatic habit; in syncope and palpitation of the heart, externally applied, it has strengthened these; applied on paralytic and hardened limbs, it has wonderfully confirmed them; and, mixed with rose water, it has benefited bad eyes in the small-pox. It has also been found of service in the colic."

I could mention other virtues: Homerus (Iliad. Ξ. ver. 347), describens concubitum Jovis et Junonis, tellurem finxit produxisse varios flores venereos, et inter hos crocum.—Hoffman. But to use the words of the poet,

Nec poteris croci dotes numerare, nec usus.

Its many imaginary virtues*!!

PREPARATIONS.

The Royal London College have thought fit only to order a syrup.

Syrup of Saffron. (Syrupus Croci.)

Take of Saffron, an ounce;
——— boiling distilled water, a pint:
Macerate for twelve hours in a close vessel, and dissolve the sugar in a strained liquor.

The dose is from two to three drachms in some cinnamon water, or camphorated mixture.

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* Although I shall often have occasion to ridicule the supposed virtues of many plants, whose effects are so frequently exaggerated, and which oftentimes do not exist, still I could wish rather that we should enlarge than curtail our short list of medical plants. Respecting the power of Saffron to produce immoderate laughter in those who take it, Amatus says in Dioscorides, Vidimus mercatorem, qui cum plures croci sarculas emisset, multum ex illo in ollam, carnes jurulentas pro cœna continentem injecisset, post earum esum, in tam intensum et vehementem risum incidisse, ut non multum abfuerit quin risu et cachinno e vita discesserit.

Hoffman gives us himself an instance. Nos, ait, nobilem fœminam Tridenti vidimus, horarum circiter trium spatio, immodico risu concuti. Dubium non est, se plus croci sumsisse mortua esset, p. 201.

It is remarkable that a tincture drawn with strong spirits, and evaporated to the consistence of honey, appears smooth like oil, and yet mixes easily with water without precipitation; therefore it must abound with some saline matter, which makes all its parts so easily mix with water and with spirits. This merits trial. Boerhaave reports that he used the extract. Should not this also be tried as well as its fragrant essential oil?

FLORENTINE IRIS.

IRIS FLORENTINA.

Class III. Triandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* six-parted; the alternate petals reflexed: *Stigmas* petal-form.

Spec. Char. *Corolla* barbed: alternate petals reflexed: *Leaves* cruciform, smooth, shorter than the scape.

DESCRIPTION.

This plant has its leaves grassy and flag-shaped, and its flowers formed of three upright petals and three expanded reflexed petals, having the pistillum with a petaloid stigma, artfully concealing the three stamina.

HISTORY.

This is a perennial plant, a native of the south of Europe. The dried root is imported from Italy. It is white, flattish, knotty, and has a very slightly bitter taste, and an agreeable smell resembling that of violets.

Neumann got from 480 parts, 77 alcoholic and afterwards 100 watery extract; and inversely, 180 watery and 8 alcoholic. The distilled water smells a little of the root, but exhibits no appearance of oil. It is chiefly used as a perfume.

MEDICAL VIRTUES.

Sir John Hill says, that the Florentine or dry Iris root is an attenuant and expectorant: it excellently thins the tough phlegm adhering to the bronchia, and renders it easily discharged. It is given with success in asthmas, difficulty of breathing, and many other disorders of the breast and lungs. The dose is from ten to fifteen grains in powder; but it is not often given alone, as might be wished, though it is an almost constant ingredient in compositions with these intentions.

Dr. Cullen says, What this root might do in its recent and acrid state, I cannot determine; but in the dried state, in which we commonly have it in our shops, we are persuaded of its being a very insignificant expectorant.

We shall therefore hasten to consider our own Water Flag.

Respecting our Yellow Water Flag (Iris Pseudacorus), a plant very common in marshes and by the sides of rivers, and rendered very conspicuous by its large yellow flowers, which appear in July, it formerly had a place in the London Pharmacopœia, under the name of Gladiolus luteus, but has been since omitted.

MEDICAL VIRTUES.

Unwilling to diminish the number of the few weapons physicians have to combat disease with, let us examine a little into the real or supposed merits of this plant.

The juice is excessively acrid in all its parts; and some of it being applied to a carious tooth, will instantly remove the sensibility, and thus cure the toothache.

The juice of the root being snuffed up the nostrils produces a burning sensation in those parts, acts as a most powerful sternutatory, and operates in a most violent way, bringing down a quantity of water; and in this way it has cured complaints of the head, of long standing, in a remarkable manner.

The expressed juice is also found to be an useful application to serpiginous eruptions and scrophulous tumours.

But its chief employment is in dropsies. Brassavola says that he has cured ascites by giving even to three ounces of its juice; and Sydenham, who gave along with it half an ounce of cream of tartar, approves of this remedy.

In the Medical Essays, vol. v. p. 94, there is a case related where all the usual remedies had failed, and this produced a cure: "By this time the strongest cathartics, such as jalap, gamboge, mercury, &c. were quite ineffectual; whereupon Dr. Rutherford ordered eighty drops of the root of the Yellow Flag to be given every hour or two in a little syrup of buckthorn, which had a very immediate effect, making the man pass several Scots pints of water by stool that very night."

Might not this be an useful remedy, like some other acrid marsh plants, against worms? But given in small doses, according to Blair's Observations, p. 78, it has been successful in diarrhœas; and according to Christian Lange it is an excellent stomachic. And we must allow that the root is a powerful astringent, being used instead of galls in making ink in Scotland (vide Pennant's Tour), and also for dyeing of black.

Old Gerarde seems to have had a tolerably fair knowledge of the virtues of this discarded plant.

1. The root of the common floure-de-luce cleane washed, and stamped with a few drops of rose water, and laid plaisterwise vpon the face of man or woman, doth in two daies at the most take away the blacknesse or blewnesse of any stroke or bruse; so that if the skinne of the same woman, or any other person, be very tender and delicate, it shall be needfull that ye lay a piece of silke, sindall, or a piece of fine laune betweene the plaister and the skinne, for otherwise in such tender bodies it often causeth heat and inflammation.

2. The juice of the same doth not onely mightily and vehemently draw forth choler, but most especially watery humors; and is a speciall and singular purgation for them that haue the dropsie, if it be drunke in whay, or some other liquor, that may somewhat temper and alay the heate.

3. The dry roots attenuate or make thinne thicke and tough humours, which are hardly and with difficultie purged away.

4. They are good in a loch or licking medicine, for shortnesse of breath, an old cough, and all infirmities of the chest which rise hereupon.

5. They remedie those that have euill spleenes, and those that are troubled with convulsions, or cramps, biting of serpents, and the running of the reines, or gonorrhœa, being drunke with vinegre, as saith Dioscorides; and drunke with wine it bringeth downe the monethly courses of women.

6. Being boyled very soft, and laid plaisterwise, it mollifieth and softneth the king's-evil, and old hard swellings.

7. The roots of our ordinarie Flags are not, as Dodonæus affirms, cold and dry in the third degree, nor yet in the second; but hot and dry, and that at least in the second degree, as any that thoroughly tasts them will confess. Neither are the faculties and vse (as some would persuade us) *to be neglected*; for, as Pena and Lobel affirme, it is much to be preferred before the Galanga major, or forreine Acorus of the shops, for it imparts more heat and strength to the stomach. It binds, strengthens, and condenses; hence it is good in the bloody flux, and staies the courses.

I must take my leave of this plant, by observing, that the juice of the fresh root only should be used, and that an old plant has most virtues in it. It might prove a dangerous remedy in incautious hands, but is said, when mixed with milk, to act in the mildest manner.

SUGAR-CANE.

SACCHARUM OFFICINARUM.

Class III. Triandria. *Order* II. Digynia.

Essent. Gen. Char. *Calyx* two-valved, involucred with down: *Corolla* two-valved.

Spec. Char. *Flowers* in panicles: *Leaves* flat.

Sugar is a hard but brittle substance, of a white colour, disposed to form semi-transparent crystallizations, of a sweet taste, and without smell. When heated sufficiently it melts, is decomposed, emits a very peculiar smell, and becomes inflamed. Sugar at 40° is soluble in its own weight of water, and in still less at 212°. It is also soluble in about four parts of boiling alcohol. It combines with volatile oils, and renders them miscible with water. It also unites with potass and lime. It is decomposed by the concentrated sulphuric and nitric acids. According to Lavoisier's experiments, it consists of 71·76 oxygen, 17·89

carbon, and 10·35 hydrogen; or, according to the original calculation, of 64 oxygen, 28 charcoal, and 8 hydrogen.

Sugar is obtained from the Sugar-cane by boiling down its expressed juice, with the addition of a certain proportion of lime or potass, until the greater part is disposed to concrete into brownish or yellowish crystalline grains. The lime or potass is added to saturate some malic acid, whose presence impedes the crystallization. The molasses, or that portion of the inspissated juice which does not crystallize, is separated from the raw sugar, which is sent to Europe to be refined. This is performed by dissolving it in water, boiling the solution with lime water, clarifying it with blood or white of eggs, and straining it through woollen bags. The solution, after due evaporation, is permitted to cool to a certain degree, and then poured into conical forms of unglazed earthen ware, where it concretes into a mass of irregular crystals. The syrup which has not crystallized runs off through a hole in the apex of the cone. The upper or broad end of the cone is then covered with moist clay, the water of which gradually penetrates into the sugar, and displaces a quantity of syrup, which would otherwise be retained in it, and discolour it. It is then carefully dried, and gets the name of *loaf* or *lump sugar*. When the solution and other steps of the process are repeated, the sugar is said to be double refined. Sugar is sometimes made to assume a more regular form of crystallization, by carrying the evaporation only a certain length, and then permitting the syrup to cool slowly. In this form it is called *brown* or *white sugar-candy*, according to the degree of its purity.

Raw sugar varies very much in quality. It should be dry, crystallized in large sparkling grains, of a whitish or clear yellow colour, without smell, and of a sweet taste without any peculiar flavour.

Refined sugar should have a brilliant white colour, and a close compact texture. It should be very hard, but brittle, and break with sharp, semi-transparent, splintery fragments.

MEDICAL USE.

Sugar, from being a luxury, has now become one of the necessaries of life. In Europe sugar is almost solely used as a condiment. But it is also a very wholesome and powerful article of nourishment; for during crop time, the negroes in the

West Indies, notwithstanding their increased labours, always grow fat. It is in this way also that its internal employment is useful in some diseases, as in sea scurvy; for sugar produces no particular effect as a medicine, except that the coarser and impure kinds are slightly purgative. Applied externally it acts as an escharotic in spongy and unhealthy granulations; and to abraded or inflamed surfaces it proves gently stimulant. In pharmacy it is principally employed to cover bad tastes, to give form to, and to preserve, more active substances. In using it for the last purpose, we must always remember that, if the proportion of sugar employed be too small, it will promote instead of retard the fermentation of the articles it was intended to preserve.

Molasses or treacle is a very impure syrup. It is thick, viscid, of a dark brown, almost black colour, and has a peculiar smell, and a sweet, somewhat empyreumatic taste.

HISTORY.

The Sugar-cane is a native of Africa and Lower Asia, as the East Indies and Arabia Felix; it is also said to grow spontaneously in the West Indies; but others assert that it was there unknown until introduced by the Europeans.

Labat, vol. i. p. 226, is decidedly of opinion that the Sugar-cane is a native plant of the West Indies. But he says, it is to the Portuguese and Spaniards that Europeans are indebted for the art of making sugar, who learned the secret from the inhabitants of the East Indies, and returning thence put it in practice, first at the island of Madeira and the Canaries, and afterwards in the Brazils and New Spain, about the end of the year 1580.

Sugar, when first introduced into every country, was used only medicinally. Pliny leaves no room for doubt on this point. Even in Arabia, in Avicenna's time, though sugar was an article of commerce from the East, there is no record of its being used in dietetic or culinary purposes for several centuries after.

MEDICAL USES.

Sugar was employed originally to render unpleasant and nauseating medicines grateful to the sick, especially to children; and for syrups, electuaries, and conserves.

As might be expected with every thing new, when sugar be-

came used in diet as well as medicine it met with the most violent opposition.

Doctor Theophilus Garencieres, who wrote in 1647, speaking of sugar, declares,—

" Sugar and all kinds of sweetmeats are very hurtful in consumption of the lungs; and, as I conceive, the so frequent use of these things tends much to create that disease; and it is not to be wondered at that consumptive complaints are so common in England.

" In respect to the predominant quality of sugar, I contend that it is heating, although hidden; and, as a proof it, it excites thirst.

" This heating quality of sugar renders it not a little injurious to the lungs, which are in themselves very hot; moderately cooling things are therefore most agreeable to their nature, but heating things easily inflame them.

" But the most important consideration is, that sugar is not only injurious to the lungs in its temperament and composition, but also in its entire property; which, I believe, no sensible person will deny: when, from its excessive sweetness, it is diametrically opposite to the bitter principle, it must follow, if bitter things, according to universal suffrage, absorb and deterge superfluous humours, expel putrefaction, and preserve bodies sound for a great while, that sweet things, from their opposite qualities, must be the fruitful parent of putrescence; and which must necessarily be more active in their effects when a part is attacked not endowed with the power of concoction, and from which afterwards it is not possible to remove the disease.

" It is certain there is no fermentation, or very little, produced between things which agree in their qualities, as sugar and flesh, on account of the sweetness and balsamic quality of sugar and the sweet essence of flesh, which assimilate with each other; for, if a piece of raw meat be put in sugar, it soon becomes putrid, unless the sugar should have been first boiled until all its sweetness is consumed, and it has acquired a bitterness; but when the meat is put into salt, it will be kept from putrefying for a great length of time, from that property in the salt which is acrid, and the balsam of the meat which is sweet, causing a kind of fermentation from the opposition of their qualities; after which fermentation a certain new temperament arises.

" The same also appears in sugar, which, though it so soon

corrupts flesh, yet will preserve acid fruits from putrefaction for a long time; because its sweetness ferments with the acidity or sharpness of the fruits, from which a new uniform temperament is produced.

" In confirmation of the preceding observations, it is not to be omitted, that in the island of Saint Thomas, under the equator, the inhabitants feed their hogs with canes, and the refuse of the cane-juice; from which they are said to fatten, and acquire such wonderful tenderness, that their flesh equals in goodness the Spanish kids, and is commonly given to people with weak stomachs, on account of its easiness of digestion.

" From hence we may infer, that if sugar possesses the power and property of converting hog's flesh, the toughest almost of any animal's, to so great a degree of tenderness, for the same reason it must accelerate the decay and sphacelation of the lungs, when they are of such a soft and spongy substance as to require styptics and astringents to preserve them.

" It is therefore clearer than the light that sugar is not a nourishment, but an evil; not a preservative, but a destroyer; and should be sent back to the Indies, before the discovery of which, probably, consumption of the lungs was not known, but brought to us with these fruits of our enterprise."

Willis, who wrote in 1674, says,—

" I so much condemn all things that are preserved with sugar, or have much sugar mixed with them, that I consider the invention and immoderate use of it, in this present age, to have very much contributed to the immense increase of the scurvy.

" For it plainly appears, by the chemical analysis of sugar, that this concrete consists of an acrid and corrosive salt, but tempered with a portion of sulphur.

" Sugar, distilled by itself, yields a liquor scarcely inferior to aquafortis; but, if it be diluted plentifully with water, and then distilled, although no fixed salt will ascend, yet there will come a liquor like the sharpest brandy, hot, and highly pungent.

" Therefore it is very probable, that mixing sugar with almost all our food, and taken to so great a degree, from its daily use, renders the blood and humours salt and acrid, and consequently scorbutic.

" A certain eminent author* attributes the cause of the fre-

* Garencieres.

quency of consumptions of the lungs, in England, to the immoderate use of sugar. I am not certain whether also the fomes of the increasing scurvy may not rather be derived from thence."

Ray, who wrote in 1689, says,—

"The physicians who lived in the last century, with unanimous consent recommend sugar for complaints in the lungs, hoarseness, cough, rawness of the throat, and internal ulcerations: yet, among us in England, not long since, it began to be accused, and to labour under great discredit, by our own as well as foreign physicians, who impute the ravages which the scurvy and consumption have lately made in England to the immoderate use of sugar in our food and drinks.

"No person should therefore attribute these evils to the moisture of the atmosphere; for, they say, that in Portugal, where the air is warm, consumption of the lungs is there epidemic, from the same cause; as the Portuguese use more sugar than any people, except the English.

"In regard to the scurvy, the same more ancient physicians, as well as those of later times, agree, that it is produced by the too great use of sugar; and that it is very hurtful to the teeth, and not only renders them black, but causes them to decay, and to loosen in their sockets, and to fall out; which are certain signs and symptoms of scurvy.

"Sugar also contains an acid and very corrosive salt, which appears from distillation.

"The scurvy is caused by a redundant fixed salt in the blood, and is therefore cured by such things as abound with a volatile salt."

Opposed to these, we have not wanted those who have amply vindicated the effect of sugar.

Slare says,—"I have a strong and home argument to recommend the use of sugar to infants; of which to defraud them is a very cruel thing, if not a crying sin. The argument I bring from Nature's first kind tribute, or intended food for children so soon as they are born; which is, that fine juice or liquor prepared in the mother's breasts, called breast-milk, of a fine delicate sweet taste. This sweet is somewhat analogous, or a taste agreeable, to sugar; and, in want of this milk, it is well known, sugar is brought to supply it. You may soon be convinced of the satisfaction which a child has from the taste of sugar, by making two sorts of water-paps, one with, and the

other without, sugar; they will greedily suck down the one, and make faces at the other. Nor will they be pleased with cow's milk, unless that be blessed with a little sugar, to bring it to the sweetness of breast-milk.

"I will set down an experiment I had from a friend. He was a little lean man, who used to drink much wine in company of strong drinkers. I asked him how he was able to bear it. He told me that he received much damage in his health, and was apt to be fuddled, before he used to dissolve sugar in his wine; from that time he was never sick nor inflamed, nor fuddled with wine. He usually drank red wine.

"I made use of sugar myself in red wine, and I found the like good effect; that it prevents heating my blood, or giving my head any disturbance, if I drink a larger portion than ordinary.

"I allow about two ounces of sugar to a pint of wine, and dare assert that this proportion will take off the heating quality of wine in a good measure; and, after one has some time used himself to add sugar to his wine, he will be pleased with the taste, and feel the comfortable and cordial virtue of this composition.

"Let those that are thin, and apt to have hot hands and heated brains upon drinking wine, and cannot abstain or be excused from drinking, take notice of this counsel, and try it for some time; and they will be pleased with the delicious taste, and salubrious effects, of this saccharine addition."—Vindication of Sugars, anno 1715.

The learned Dr. Moseley has lately very ably vindicated this article, used as diet, and for medicine, in a most elaborate "Treatise on Sugar *." We will sum up his arguments in this place.

"When we consider that the saccharine principle is the soul of vegetable creation, and see how sparingly it is diffused through the general productions of the earth, and how little is collected from the wide range of flowers, by the consummate skill of the laborious bee; or from roots, trees, fruit, and grain, by the chemic art; we cannot but admire the partiality of Nature to the luscious cane, her favourite offspring, the sublimest effort of heat and light.

* This Treatise is one of the very best monographs we possess.

"The proportion of sugar to the cane-juice depends on the quality of the cane. We consider a pound of sugar from a gallon of cane-juice, as good yielding; and three hogsheads of sugar, of 14 cwt. each, from an acre of land, as ample produce. But for this quantity the soil must be good, and the canes of the first year's cutting, and in perfection.

"In the process of refining muscovado sugar, a ton weight, of good quality, gives the following products:

	cwt.	q.	lb.
Double and single refined sugar -	9	1	$5\frac{5}{16}$
Piece ditto - - - - - - - -	4	0	0
Scale, or bastard ditto - - - -	2	0	0
Melasses, or treacle - - - - -	4	1	22
Scum and dirt - - - - - - - -	0	1	$0\frac{11}{16}$
	20	0	0

"That sugar is nutritious in the most eminent degree has been long known. It is the basis of all vegetable nutrition.

"Every root and earthly production is nutritious in proportion to the saccharine principle it contains. Nothing nourishes that is entirely free from this saccharine principle; otherwise turnips would be as little nutritive as cucumbers, being, like them, the sugar excepted, scarcely any thing but water.

"Milk is nutritious on the same account, and that milk is most nutritious which most abounds with saccharine sweetness; and when milk is defective in this quality, from bad pasturage and other causes, our vegetable sugar should be added to it, to remedy such defect.

"In all cases sugar helps the assimilation of milk in the stomach, and not only prevents its curdling, and disordering that organ, but corrects the tendency which milk has to injure the breath, by adhering to the teeth and gums, and rendering them foul and offensive.

"There are many people to whom a milk diet would be a great convenience and gratification; and there are some habits of body and disorders wherein it would often be of the utmost utility; but the stomach frequently is unable to bear it. Here sugar is the only means to reconcile the disagreement.

"A learned and worthy relation of mine, having been much afflicted with the gout, and having seen the good effects of a milk diet in similar cases to his own, wished to have recourse to it in the same manner, and make it a principal part of his sustenance; but he could not. It curdled, and became sour, heavy, and disgusting in his stomach. He was always very fond of milk, but never could use it without inconvenience, even when he was a boy.

"However, on reading the former edition of this work, he was determined to have another trial of milk, with the addition of some sugar. This succeeded, and he now makes two meals every day entirely on milk and bread, with great pleasure and comfort, and with infinite advantage to his health.

"As milk has the property of injuring the teeth, and is much used in schools, and constitutes great part of the sustenance of most young people, a tooth-brush and water should always be employed; or at least the mouth should be well rinsed with water, after a meal made of milk.

"No modern physicians have noticed this; but the ancients were well acquainted with the injurious effects of milk on the teeth and gums*.

"In regard to sugar being prejudicial to the teeth, this has long been known as a prudent old woman's bugbear to frighten children, that they might not follow their natural inclination, by seizing opportunities, when they are not watched, of devouring all the sugar they can find.

"This story has had a good effect among the common people in Scotland. They are impressed with a notion that *sweeties* hurt the teeth; therefore they live contented without an article not always within the compass of their finances.

"Slare, and many others, used sugar as a principal ingredient in tooth powders. It is a component part of many pastes, and other dentifrices; and what the French call *opiates*, for the preservation of the teeth and gums.

"When milk is not the sole diet of children at their mother's

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* P. Æginetæ, lib. i. c. 86.—Lac gingivas et dentes lædit. Quare post ipsum acceptum, primum aqua mulsa, deinde vino adstringente, os colluere oportet.

Oribasii à Galeno Medicin. Collect. lib. ii. c. 59.—Mirum in modum usus lactis frequens dentes et gingivas lædit, nam gingivas flaccidas, dentes putrefactioni et erosioni obnoxios facit: ergo sumpto lacte, os vino diluto colluendum est; erit etiam accommodatius si mel eidem adjicias.

breast, sugar, in various mixtures and vehicles, makes the chief portion, essentially, of their support.

" Sugar affords great nourishment, without oppressing their tender powers of digestion. The nutritive principle of their natural food is thus happily imitated.

" Sugar does not create worms in children, as has been often said; on the contrary, it destroys worms. Some writers have mentioned this*; but my authority is my own observation.

" In the West Indies, the negro children, from crude vegetable diet, are much afflicted with worms. In crop-time, when the canes are ripe, these children are always sucking them. Give a negro infant a piece of Sugar-cane to suck, and the impoverished milk of his mother is tasteless to him. This salubrious luxury soon changes his appearance. Worms are discharged; his enlarged belly and joints diminish; his emaciated limbs increase; and, if canes were always ripe, he would never be diseased.

" I have often seen old, scabby, wasted negroes crawl from the hot-houses, apparently half dead, in crop-time; and by sucking canes all day long, they have soon become strong, fat, and sleaky.

" The restorative power of sugar in wasted and decayed habits, is recorded by several physicians in different parts of the world. I have known many people far advanced in pulmonary consumption, recovered by the juice of the Sugar-cane.

" A friend of mine, a clergyman in Shropshire, has favoured me with a very interesting account of a cure performed by the use of sugar, in such a diseased state of the lungs as is generally denominated a complete consumption.

" The case is curious; and I shall recite as much of it as is necessary to the fact. The patient is a gentleman, and a neighbour of my friend. He had been attended by two eminent physicians, who had given up the case as incurable. He then applied to the late doctor James, who ordered one paper of his powder to be divided into eight parts, and one part to be taken every other night, diluting with strong green tea. After being a week under this treatment, he was taken out of his bed every morning between nine and ten o'clock, and, supported by two persons,

* Act. Med. Leip. anno 1700.

was hurried along the garden-walk, when the weather was fine, which brought on expectoration and retching; when the oppression from his lungs was removed by these operations, he was put into his bed again, and had a tea-cupful of milk-warm mutton broth given him; this excited a gentle perspiration, and pleasant sleep. He was allowed calves' feet, chicken, fish, and a glass or two of Port wine. This was James's practice. The patient thought himself benefited by it. He was at this time so reduced that he kept his bed upwards of two months, not being able to stand, nor even to sit upright in a chair, without support; his cough was violent, with bloody purulent spitting, fever, and profuse and sudden night sweats. He was then twenty-six years of age.

" His disorder originated from sleeping with his bed-room window open, in the month of June 1770; and increased to an alarming degree by the month of August; and in March 1771 the above physicians gave over all hopes of his recovery. These things premised, I shall give the gentleman's own words, in answer to some particulars stated to him, by my desire.

" ' I did not take to the use of sugar until I was reduced to so weak a condition as to be unable to take any thing else. Sugar was never prescribed for me by any physician; but being very thirsty, from the fever, I had a great inclination for spring water, which I was not permitted to have, by the affectionate relative who nursed me, without some muscovado sugar, a little ginger, and a piece of toasted bread in it. I soon became extremely fond of the saccharine taste, and used to sweeten the water to excess. I did not take it as a medicine, nor confine myself to any specific quantity, but always used it when my appetite or inclination seemed to require it. However, I at length used it in a considerable quantity; some days, to the amount, I believe, of eight ounces; and that, with the small portion of toasted bread put into my drink, was the principal part of my sustenance during the greater part of twelve years; nor did it cease to be so until my stomach became strong, and capable of bearing animal food.'

" He continued in good health from the preceding period until the month of April 1793, when, in consequence of a neglected cold, he had a return of all his former dangerous symptoms; but, by recurring to his old regimen, he was again restored to health,

in about six months time, excepting in strength, which he recovered by degrees. He is now in better health than he ever was before in his life.

" Fontanus, Valeriola, and Forrestus, assert that they had patients cured of consumption of the lungs by a continued use of the conserve of roses; and Riverius knew an apothecary who cured himself of a confirmed consumption by almost living on the conserve of roses. Avicenna records an instance of a surprising cure performed on a patient, so nearly dying in a consumption, that preparations were making for her funeral; and who was not only perfectly restored to health, but became very fat, by eating a great quantity of conserve of roses *. Foreign journals are full of histories of consumptions cured by this medicine.

" There are instances where people have scarcely taken any other nutriment than conserve of roses. Some have eaten a pound, and a pound and an half, of this conserve every day: three-fourths of this conserve are sugar.

" The virtues of sugar are not confined to its nutritive and balsamic qualities. It resists putrefaction, and preserves all substances,—flesh, fruits, and vegetables,—from corruption.

" It has a great solvent power, and helps the solution of fat, oily, and incongruous foods and mixtures. It promotes their maceration and digestion in the stomach, and qualifies the effects of digestion to the powers of the lacteals †.

" For this reason sugar is much used in foreign cookery, and so much introduced at the tables of the luxurious in France, and also in Italy, Portugal, Spain; and indeed in every country, ex-

* This curious case deserves to be remembered. " Si non timerem dici mendax, narrarem in hac intentione mirabilia, et referrem summam, qua usa est mulier phthisica. Pervenit res cujus ad hoc, ut ægritudo cum ea prolongaretur adeo, donec pervenerit ad mortem, et vocaretur ad ipsam, qui præpararet ea quæ mortui sunt necessaria. Tunc quidam frater ejus surrexit ad eam, curavit eam, hac cura tempore longo, et revixit et sanata est, et impinguata est; et non est mihi possibile, ut dicam summum ejus, quod comedit de zuccaro rosaceo." Lib. iii. fen. 10. tr. 5. c. 6. p. 668.

† " Acria lenit, acida obtundit, salsa mitiora austera suaviora reddit, fatuis et insipidis gratum saporem tribuit; atque ut uno verbi concludam, omnium saporum domitor videri potest; nihilque absque saccharo ferè ventri gratum, panificio operi additur, vinis miscetur, aqua enim saccharo suavior salubriorque redditur.—Nonnii de Re Cibaria, lib. i. c. 47. p. 152.

cepting England, in confections, preserves, sweetmeats, and liqueurs *.

" Sugar, in the form of syrup, is an admirable vehicle to comminute and convey to the internal absorbing vessels any alterative, mineral, or vegetable medicine.

" By its miscible property it diffuses minutely any preparation it may hold in solution, or union, on the surface of the stomach and intestines, and subjects it to the capacity of the orifices of the smallest vessels.

" Sugar alone has many medicinal virtues; and, made into a common syrup with water, and disguised, and perhaps somewhat improved by vegetable additions, has performed many cures in diseases, from impoverished blood, rickets, and scrophula, that have baffled the most skilful physicians; and empirics have accordingly availed themselves of what they term ptisans and medicated syrups."

The balsamic and fattening properties of sugar are prominently visible in all parts of the world where it is made, and not confined to the human race.

The celebrated historian Mr. Bryan Edwards was too accurate in his researches to suffer a fact, so interesting as this, to escape his observation.

In his History of the West Indies he has drawn a faithful representation of a plantation in the season of making sugar †.

He says,—" So palatable, salutary, and nourishing is the juice of the cane, that every individual of the animal creation, drinking freely of it, derives health and vigour from its use. The meagre and sickly among the negroes exhibit a surprising alteration in a few weeks, after the mill is set in action. The labouring horses, oxen, and mules, though almost constantly at work during this season, yet being indulged with plenty of the green tops of this noble plant, and some of the scummings from the boiling-house, improve more than at any other period of the year.

" It must be observed, that muscovado, or what is called moist sugar, is laxative; and that, in using the juice of the cane, either as a luxury or a medicine, this also is of a laxative

* " Si perquam, parce ultima mensa devoretur, concoctionem juvat, satietatem ferè tollit."—Alex. Petronius, De Victu Romanorum, p. 328.

† January, February, March, and April.

nature, particularly with people unaccustomed to it; and sometimes it operates as an active purgative, and disorders the bowels. This happens frequently to Europeans, who arrive in the sugar countries just at crop-time, and, allured by its grateful novelty, take it to excess."

In support of this opinion we have also the concurrence of the famous Dr. Cullen.

"The second kind of vegetable matter which we have said may be supposed to be alimentary, is sugar. Whether this in its pure saline state, and taken by itself, without any mixture of oleaginous matter, can prove alimentary, seems to me very doubtful; but that even when approaching very nearly to a saline state, as it is in the Sugar-cane, it may prove alimentary, is presumed from what happens to the negroes upon our sugar plantations, who are observed to grow plump and fat when during the expression of the canes they take a great deal of the cane-juice.

"The same conclusion may be drawn likewise from this circumstance, that the people of warmer climates live very much upon fruits, whose substance, in a great part, consists of sugar; and I think it evidently appears that these fruits are more nourishing in proportion as they contain more of sugar. That sugar enters for a large share into the nourishment of men, we may know particularly from hence, that figs, a very saccharine fruit, were anciently the chief food of the athletæ, or public wrestlers.

"That the roots of these vegetables, that are especially alimentary, contain a great deal of sugar, we learn from Margraaf's experiments, which show that a great deal of pure sugar may be extracted from them; and it can hardly be doubted that a great part of their nutritious power depends upon this ingredient in their composition.

"The best proof, however, of the nutritious quality of sugar, or of its being a chief part of alimentary substances, is, that a great proportion of sugar is contained in all farinaceous matter. This appears from its being evolved in the most part of the farinaceous seeds by their germination or malting. And lastly, that all alimentary vegetables do for a great part consist of sugar, we may presume, from their being universally liable to a vinous or acetous fermentation, the subject of which is probably in all cases a sugar.

"The affinity between saccharine and farinaceous matter appears particularly from this, that several fruits which at a certain period of their maturation are chiefly saccharine, are in their further progress often changed to a farinaceous state. The germination of seeds, therefore, and the maturation of certain fruits, fully prove the mutual convertibility of sugar and farina into each other.

"While we thus endeavour to show that farinaceous substances contain a large proportion of saccharine matter, it is to be observed that the farinaceous seeds are of all other vegetable matters the most powerful and nourishing to men, as well as to domestic animals; and hence the Farina alibilis of Haller. The nutritious quality he indeed imputes to a mucilaginous or gelatinous matter which appears in them upon their being diffused in water, and it is possible that their nutritious quality may depend upon this; but at the same time, from what we have just now said of the composition of farinaceous matter, it will appear that this vegetable mucilage or gelatina consists for a great part of sugar, which therefore may still be the basis of its alimentary part."

Sugar is sometimes used surgically. The refined sugar, pounded fine, is blown through a quill to remove specks on the cornea of the eye.

It is mentioned also as singularly efficacious in the cure of sordid ulcers of the leg*.

As far as my opinion goes, it is very favourable to the free use of sugar, especially for children, though in some constitutions it is apt to ferment and turn acid on the stomach. But in general it agrees well. It however blunts the desire for other food, as a little of this goes a great way, and therefore is said

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* Ex arundinibus saccharum extrahimus, non solum id incorruptibile, sed aliis præstat ne corrumpantur; vulneribus injectum à putrefactione liberat; ex eo solo ingentia vulnera sanari vidimus. Phytognomica, lib. v. cap. i. p. 201, anno 1560, by Baptista Porta.

"Sugar, extracted from canes, is not only incorruptible in itself, but preserves all other things from corruption; sprinkled upon wounds it keeps them from mortifying. I have seen very large wounds cured only with sugar." The method of treating fresh wounds among the Turks, is, first to wash them with wine, and then sprinkle powdered sugar on them. The celebrated monsieur Belloste cured obstinate ulcers with sugar dissolved in a strong decoction of walnut leaves. This I have found to be an excellent application.

to pall the appetite. Respecting injuring the teeth, I am afraid the imputation is but too true; and most have felt it when eating of figs, which are replete with saccharine matter. The refined sugar also is so hard, that it is apt to break the enamel, and thus injure the teeth. But the prevailing prejudices against sugar are rather to be discommended than enforced.

For the several syrups, see the different heads, where these naturally fall. We shall conclude our long account with

Simple or Common Syrup. (Syrupus Simplex sive Communis. E.)

Take of double refined sugar, in powder, fifteen parts;
——— water, eight parts:
Let the sugar be dissolved by a gentle heat, and boiled a little, so as to form a syrup.

Simple syrup should have neither flavour nor colour, and is more convenient in extemporaneous prescription than sugar undissolved.

This is not included in the Pharmacopœia of the Royal London College of Physicians.

The mode of preparing syrups is as follows:

Syrups. (Syrupi. L. D.)

In making syrups, where we have not directed either the weight of the sugar, or the manner in which it should be dissolved, this is to be the rule:

Take of double refined sugar, twenty-nine ounces;
Any kind of liquor, one pint:
Gradually add the sugar, and digest, with frequent agitation, in a close vessel, and in a moderate heat, until it be dissolved; then set it aside for twenty-four hours; take off the scum, and pour off the syrup from the fæces, if there be any.

Syrups are solutions of sugar in any watery fluid, whether simple or medicated. Simple syrup is nutritious and demulcent. When made of fine sugar, it is transparent and colourless. If necessary, it is easily clarified, by beating to a froth the white of an egg, with three or four ounces of water, mixing it with the syrup, and boiling the mixture for a few seconds, until the albumen coagulates, and, enveloping all heterogeneous matters, forms a scum, which may be easily taken off, or separated by filtration. When, instead of simple water, any other fluid is used for dissolving the sugar, the syrup is then medicated. Medicated syrups are prepared either with expressed juices, infusions, decoctions, or saline fluids. The object of forming these into syrups, is either to render them agreeable to the palate, or to preserve them from fermentation. In the latter case, the quantity of sugar added becomes a matter of great importance; for, if too much be employed, the sugar will separate by crystallization; and, if too little, instead of preventing fermentation it will accelerate it. About two parts of sugar to one of fluid are the proportions directed by the British colleges with this view. But as, in some instances, a larger quantity of fluid is added, and afterwards reduced to the proper quantity by decoction, it will not be superfluous to point out some circumstances, which show the evaporation to be carried far enough. These are, the tendency to form a pellicle on its surface, when a drop of it is allowed to cool; the receding of the last portion of each drop, when poured out drop by drop, after it is cold; and, what is most to be relied on, its specific gravity when boiling hot being about 1·3, or 1·385 when cold. The syrup which remains, after all the crystallizable sugar has been separated from it, has been much, and probably justly, recommended by some for the preparation of medicated syrups and electuaries, although its pharmaceutical superiority is actually owing to its impurity.

Sugar Beer.

Very excellent beer is made of sugar, and also of treacle. You first boil a peck of bran in ten gallons of water; strain the bran off, and mix with the branny water three pounds of sugar, first stirring it well: when cool enough you add a tea-cupful of the best yeast, and a table-spoonful of flour, to a bowl nearly full of the saccharine water, which, when it has fermented for about an hour, is to be mixed with the remainder, and hopped with about half a pound of hops, and the following day it may be put into the cask, to ferment further, which usually takes up three days, when it is to be bunged, and it will be fit for drinking in a week. Treacle beer is made in the same way, three pounds of it being used instead of three pounds of sugar.

N. B. This beer will not keep any length of time.

BARLEY.

HORDEUM DISTICHON.

Class III. Triandria. *Order* II. Digynia.

Essent. Gen. Char. *Calyx* lateral, with two valves, one-flowered, three together.

Spec. Char. Lateral flowers unbarbed: *Seeds* angular, imbricated.

DESCRIPTION.

It is too well known to need any account.

HISTORY.

Barley is an annual plant, cultivated in almost every country of Europe. Linnæus says that it is a native of Tartary, but without adducing sufficient proof.

MEDICAL VIRTUE.

Pearl barley is prepared by grinding off the husk of rough barley, and forming the grain into little round granules of a pearly whiteness. In this state barley consists almost solely of amylaceous matter: when boiled it forms an excellent article of nourishment; and a decoction of it, properly acidulated, is one of the best beverages in acute diseases.

These are thus prepared:

Decoction of Barley. Barley Water. (Decoctum Hordei. L. D. Decoctum Hordei Distichi. E.)

Take of pearl barley, two ounces;
——— water, four pints:
First wash off the mealy matter which adheres to the barley with some cold water; then extract the colouring matter, by boiling it a little with about half a pint of water. Throw this decoction away; and put the barley thus purified into four pints of boiling water, which is to be boiled down to one half, and strain the decoction.

Compound Decoction of Barley. (Decoctum Hordei compositum. L. D.)

Take of the decoction of barley, two pints (four pints, D.);
——— raisins, stoned, two ounces;
——— figs, sliced, two ounces;
——— liquorice root, sliced and bruised, half an ounce;
——— (distilled water, one pint. L.)
Boil to two pints, and strain. L.
During the boiling, add the raisins first, and then the figs, and, lastly, the liquorice, a short time before it is finished, when the strained decoction ought to measure two pints. D.

These liquors are to be used freely, as diluting drinks, in fevers and other acute disorders; hence it is of consequence that they should be prepared so as to be as elegant and agreeable as possible: for this reason they are inserted in the Pharmacopœia, and the several circumstances which contribute to their elegance set down; for, if any one of them be omitted, the beverage will be less grateful. These are, however, much oftener prepared by nurses and servants than by the apothecary; but it is oftentimes requisite for the physician to direct them in the right preparation thereof. The French make great application of these diluting and softening drinks, and there can be no doubt in slight diseases they are found extremely serviceable; and are useful as an *adjuvant* to allay thirst, keep up perspiration, and gently nourish, even in the most acute disorders.

Malt.—Barley, when brought to a state of germination, and then dried by heat, is called malt. By this process the saccharine qualities of the barley are increased, which are easily extracted by water, when it is called wort, or more properly malt tea. The

method of preparing this is to take one pint of fresh ground malt to three of boiling water, the mixture to be well stirred and left to stand, covered, for three or four hours, when it is fit for drinking. It is to be used for drink instead of beer, and is supposed to remove any hot scorbutic humour of the blood, and sordid ulcers of the leg. In cases of cold, this taken thorough warm in lieu of bran tea, is found to be very effectual. But it has been especially recommended as a cure of sea scurvy by Dr. Macbride, and it appears that the worst cases of that disease have yielded to its use. It is highly nutritious; and when found to relax the bowels, this is corrected by a few drops of laudanum (tincture of opium). The essence of malt should be taken by passengers going out to sea, and by all sea captains.

Brewing.

General Observations.—From the increased and increasing dearness of all descriptions of malt liquor, and from its frequent adulteration, by which the health and lives of the public are impaired and endangered, it has become almost the duty of every family to brew for itself. In this process, which will here be found much simplified, there is far less difficulty than is generally imagined. First, with respect to the best season for brewing: moderate weather should be chosen. Hot weather should be avoided. But all beers will keep best when brewed just before Christmas. The cellar should not be subject to either extremity of heat or cold.

Brewing Vessels.—For a copper holding twenty gallons, the mash-tub ought at least to contain four bushels of malt. The copper, with room for mashing or stirring, the coolers, and working-tubs, may be rather fitted to the convenience of the room, than to any particular size, as if one vessel be not sufficient you may take another.

Management of the Vessels.—As it is necessary that the vessels should be perfectly clean, and free from mustiness, you must strictly examine them on the day before you intend to brew. They should never be converted to any other purpose, except for the use of making wines; and even in that case, after being done with, they should be properly cleansed, and kept in a place free from dirt. Let each cask be well cleaned with boiling water; and, if the bunghole be large enough, scrub the inside with a small birch-broom, or brush. If you find them bad, and a very

musty scent comes from them, take out the heads, and let them be scrubbed clean with a hand-brush, sand, and fullers-earth. When you have done this, put on the heads again, and scald them well; then throw in pieces of unslaked lime, and stop the bungs close. When they have stood some time, rinse them well with cold water, and they will be fit for use.

Women ought never to be suffered to wash in a brewhouse; for nothing can be more hurtful than the remnants of dirty soap-suds left in vessels calculated only for the purpose of brewing.

In preparing the coolers, be careful not to let the water stand too long in them, as it will soak in, and soon turn putrid, when the stench will enter the wood, and render them almost incurable. To prevent such consequences, it has been recommended that coolers should be leaded. They are thus more cleanly; and they expedite the cooling of the worts, which is necessary to forward them for working, as well as afterwards for cooling the whole. The coolers should be well scoured with cold water two or three times, cold water being more proper than hot to effect a perfect cleansing.

The mash-tub in particular must be kept perfectly clean; nor must the grains be left in the tub any longer than the day after brewing, lest it should sour the tub; for, if there be a sour scent in the brewhouse before your beer is tunned, it will be apt to infect your liquor and worts.

Malt.—Malt should be chosen by its sweet smell, mellow taste, round body, and thin skin. Pale malt is mostly used in private families, and brown in public brewhouses, as it appears to go further, and gives the liquor a higher colour. The sweetest malt is that which is dried with coke or cinders; in grinding which, see that the mill be clean from dust, cobwebs, &c., and set so as to crush the grain, without grinding it to powder; for you had better have some small grains slip through untouched, than have the whole ground too small, which would cause it to cake together, and prevent the goodness from being extracted.

Hops.—Hops must be chosen by their bright green colour, sweet smell, and clamminess when rubbed between the hands.

Mashing.—With two bushels of malt, and a pound and a half of hops, you may make eighteen gallons of good ale, eighteen gallons of good table beer, and nine gallons of small beer; for which a copper containing twenty-four gallons would be most convenient.

If the whole be intended for present drinking, and in cold weather, there need not be more than about six ounces of hops to a bushel of malt; but in warm weather it will be necessary to apply about half a pound to a bushel.

The first proportions mentioned, are proper when the best beer is intended to be kept ten or twelve months; but if the beer is to be kept sixteen or eighteen months, there should be a pound of hops to every bushel of malt. Circumstances, however, will occasionally render it necessary to vary the proportions; as, if the hops are old, a greater quantity of them must be allowed.

One of the first things to be observed in the process of brewing, is to obtain a heat proper for extracting the virtue of the malt. The heat of the water, or liquor, as it is technically termed, should be regulated in the mash-vat so as to prevent any injury to the delicate and more soluble parts of the malt, and yet to obtain every necessary property. The frequent errors committed in this first stage, are a principal cause why the beer, in private families, so frequently proves contrary to their expectation: either too high or too low a heat is prejudicial; the former is of the utmost consequence; but the latter, as far as regards extracting the contents of the malt, may be remedied in the succeeding mashings. Should the infusion be made at too high a heat, the consequence will be that of *setting* the goods, or mash; that is, from its violence the sweet of the malt will be in a great measure locked up, and retain with it a considerable portion of the wort; therefore, besides falling short of the intended quantity, the extract will be deprived of that strength and quality which it ought to possess, in consideration of the quantity of malt allowed for the purpose; and it will be matter of great difficulty to obtain by the succeeding mashings the whole virtue of the malt. Should the operation be performed when the water is below its proper heat, the extract will be imperfect, and consequently deficient in strength, &c., but by the second and third mashing, the whole of the rich and most esteemed properties of the malt may be completely drawn off. In this instance it will be judicious to mix the three worts together, as the first wort alone cannot prove good.

The water having been emptied from the copper, it has been usual to let it remain in the mash-vat till the steam is so far evaporated that you can see your face in it. This mode holds good,

and will be a pretty near guide in cold clear weather; but it is even then subject to the following objection: the steam will sometimes fly off before the water is sufficiently cold; in which case, particularly if the wind be brisk, and the brewery open, it will be prudent to let it remain some time after the reflection can be discovered in the water. In close, thick, and rather warm weather, this rule is extremely liable to error; for then, especially if the brewhouse be confined, the steam will not go off sufficiently to judge with any degree of certainty of the heat; and before the water would become clear, &c., agreeably to the above maxim, it would be too cold to operate properly on the malt. The most certain method to obtain a proper heat for mashing, is to mix a quantity of cold with a given quantity of boiling water. In mild weather, rather more than one gallon of cold to twelve gallons of boiling water, will be found to be a good proportion. Should the air be inclined to cold, one gallon of cold to about fourteen gallons of boiling water; and, if very cold, one to sixteen gallons, will perhaps answer the purpose. A brewing thermometer, however, which may be had for about twenty shillings, and frequently much less, is still more correct; and as correctness is of the greatest advantage, in point of œconomy, as it insures a complete extract of all the essential properties of the malt, it will be worth while, in most families, to purchase one, taking care to obtain a table with it, for its mode of application.

If possessed of a thermometer, observe the following rules: Immediately that the water is turned from the copper into the mash-vat, immerge the instrument for about the space of one minute: the state of the quicksilver in the tube will then be easily discerned; if found to be too hot, apply cold water in small quantities till reduced to a proper heat. In some instances it may be proper to vary the extracting heat; such as when very new malt is brought into the mash-vat, the water in that instance should be applied from four to six degrees colder; and very old, or slack malt, will require it as many degrees warmer. When hard water is used, it should be applied four degrees warmer, and soft water four degrees colder. At all events, as soon as the boiling water is emptied into the mash-vat, the cold water must be immediately mixed with it, and the mashing performed as expeditiously as possible; taking care to saturate, or wet, every part of the malt. Should the copper not be large enough

to make a full mash the first time it is heated, every means of dispatch must be exerted to get it hot again; and then directly turn into the mash-vat the quantity that is judged necessary for the size, or quantity of wort to be drawn off, stirring the mash again, thoroughly to incorporate the whole. This addition of water may be applied about four degrees warmer than the first. The mash-vat should now be covered close with sacks, or something similar, and remain two hours before it is suffered to run.

The heat of the water for the second mash requires less attention than was necessary in the former; as, admitting that to have been well conducted, there cannot now arise much danger of injuring the malt. The best method for the second mash is, to let the water boil up well, and then throw into the copper a small quantity of cold water, in the proportion of one to about twenty-five gallons; and by the time it is on the goods, or mash, it will in general be a good heat. This second mash will be the better for being covered close, and as to the time of its standing, that must be regulated by the boiling of the first wort; as, after it has boiled long enough, and is fit to strain into the coolers, the second wort must be ready to return into the copper.

The third mash may generally be made with cold water, unless any part of the virtue of the malt, owing to the ill treatment of the preceding mashings, is thought to remain, in which case hot water must be used. This mashing, as well as the two preceding, should be stirred; and after it has run off, and the brewing is to be pursued the next day, it will be proper to put on the goods about as much cold water as the copper might contain, well stirring it again; and immediately as the small beer is boiled off, return it into the copper for the next morning's mashing. By this mode of proceeding, it is scarcely possible that any of the rich saccharine properties of the malt should remain unextracted.

Boiling.—In the preparation for boiling, the greatest care must be taken to put the hops in with the first wort. As soon as the copper is full enough, make a good fire under it, but be careful to leave room enough for boiling. Quick boiling is part of the business that requires very particular attention. Should the copper have no curve, or any thing to hinder its boiling over, there ought to be something of the kind constructed, high enough to prevent any material danger arising from losing any part of

its contents. A piece of sheet lead, about a foot deep, or more, soldered to the copper all round, and supported with bricks, or a curve of wood, will answer the desired purpose in preference to any thing. Observe, that the person who attends the copper should never leave it while boiling; for, if an uniformity be not kept up, it is impossible to ascertain how long it may take to complete the business.

Observe, also, that should the wort be boiled too long, it will be so much condensed as greatly to retard the fermentation. If the first wort be meant to be put away for strong beer, without mixing any part of the second with it, the loss of the fine rich flavour of the hop must not be regarded; but the boiling must be pursued a sufficient length of time to obtain a proper quantity of its preservative principle. If boiled as fast as convenience will permit, for about three quarters of an hour, it will be found to be a proper time for this wort.

A longer time will be required for the separation of the second wort, as it partakes of the oleaginous nature of the malt in a greater degree than the first; an hour and a quarter, or an hour and a half, will not be too long. For the third, or small wort, one hour's boiling will suffice.

If the first wort be intended to mix in with the second, for ale, half an hour's quick boiling will be enough.

Cooling.—The worts should be cooled as quickly as possible at all seasons of the year, consequently they should not lie in the coolers more than three or four inches thick in the winter, and two inches thick in the summer, care being taken to proportion the coolers to the quantity of malt generally used. Plenty of room is requisite for this purpose.

Fermenting.—With respect to the heat of the worts, at the time of putting them together, to those who have not a thermometer, the best direction that can be given is, that in very cold weather they should feel quite warm when set to work. In milder weather they should feel rather warmer than the hand or finger; but if very hot weather, they cannot be brought too cold into the tun.

Should it be necessary to brew in the heat of summer, the mashing should be deferred till noon; the worts will then come off in the evening, and lie during the cool of night. They should be examined in the morning, about sunrise, and if found to be sufficiently cold, should be set to work immediately. If not,

they may remain an hour or two; but it would be imprudent to let them remain longer, as the air would be getting warmer, and the worts in such weather are liable to a putrefactive fermentation.

The quantity of yeast that is necessary to excite the fermentation, is in the proportion of one quart of that which is fresh and steady, to about forty gallons of strong beer or ale; and one pint and a half to the same number of gallons of small beer. Should the weather prove extremely cold, rather more than the quantity here mentioned may be applied; and in very hot weather, it will be expedient to diminish the quantity. Immediately that the yeast is applied to the wort, it should be stirred for the space of two or three minutes, thoroughly to incorporate the whole, and thereby to cause, in some degree, an immediate fermentation.

The yeast which is intended to be used should be put at one time into the tun, unless the tun should be so situated as to be affected by a sudden change of the weather, such as from rather mild to extreme cold: it may then perhaps be necessary to add more yeast, which must be stirred into the tun in the same manner as when first set to work. Indeed, after this it may be found proper repeatedly to beat in the head, and stir it for two or three minutes together, which is a measure of necessity, to revive the fermentation, after having been checked by the coldness of the weather, as to be in danger of never working properly in the casks after being tunned. Observe that, wherever the tun may be placed, it will be proper to keep it always covered close, and thereby to prevent, as much as possible, the escape of the fixed air which is generated by the fermentation.

The number of hours which the strong beer fermentation will continue, depends on the weather, and other circumstances: sometimes it will be complete in forty or fifty hours, and at other times exceed sixty hours. The greatest reliance that can be placed with regard to the period of cleansing, is to pay attention to the head of the guile; and it will be observed, after being some time in its most vigorous state, to begin to turn rather of a brown yeasty nature; and by repeated attendance it will be clearly perceived to get more dense and discoloured till the work is completed, which will be perfectly understood by its appearing of a thick yeasty consistence, and just ready, as it were, to fall back into the beer: it then ought to be tunned

immediately, as it is better to tun a few hours too soon, than one too late.

Tunning.—Strong beer that is brewed in small quantities, and ale, whatever the quantity may be, should be tunned the second day after brewing; and small beer should be tunned as soon as it has fairly taken the yeast, which will be seen by the creamy appearance on its surface.

The bung-hole in the casks for cleansing should be bored in the centre of a stave at the bilge part of the cask; as it is from thence that it is to work and purge itself clean from the yeast, which cannot be effected in a proper manner if the bung-hole be made in any other part.

The best method of working beer, after cleansing, is by a stilling, an utensil which is in the form of a long trough. For a private family, this may be made about ten or twelve inches deep, and twelve or fourteen inches wide in the clear; and the length according to the number of casks which there may be occasion to work on it at one time. If the stilling be of any considerable length, it will be adviseable to fix two or three iron braces across, to render it steady and to prevent its spreading: these should be rather concave, in order that the casks may roll pleasantly along. Great attention must be paid to the closing the joints of the stilling, which would be the better for being lined with lead. It should have a cork-hole bored through the bottom near one end, and be placed just high enough to draw from under it with a bowl-dish or something of that nature.

The casks having been placed upon the stilling, they must be set sufficiently inclining for the yeast to work down one side of them. If the beer work briskly, it should be filled up once an hour at least, for the first six or eight hours after being tunned; and care must be taken to keep the casks filled till the fermentation shall entirely cease, which, if well conducted, will be in a few days.

If the beer in the stilling should be getting very thick, it will be proper, in the evening, to draw it all out, and turn it into a tub, or one of the coolers, to pitch; in ten or twelve hours, if not laid too thick, it will become tolerably fine; and by keeping a succession of it, settled, or pitched in this manner, the beer on the stilling may be filled up with it till completely worked off.

Where it may not be thought worth while to provide a stilling, the best way to proceed will be to place a tub on a stand,

with a cork-hole bored through the bottom, and across the tub make a temporary wood frame, on which the cask to be filled must be placed, working it in the same manner as on the stilling.

When the beer has been completely worked off, it will be proper to remove it to the place where it is to remain till drunk. As soon as it is fixed, the bung must be drawn, and the casks filled up quite full with fine beer, skimming off the head from time to time, that will arise in consequence of its being worked over. After it has been attended in this manner for two or three days, about three quarts should be drawn from each cask; (if hogsheads, and others, in proportion,) and then about two quarts of fresh-boiled hops, run as dry as possible, should be put into the beer. The casks must then be bunged tight, and a hole bored for the vent-peg, which should be left rather slack a day or two; and if the beer be observed to fret, or, owing to the swelling of the hops, the cask should be so full as to run out at the vent, it will be necessary to draw off two or three pints more. When quite free from fretting, the peg may be beaten in tight, and there will be no further attention required than to examine it every now and then during the first two or three weeks, being careful, if it be again inclined to ferment, to draw off an additional quantity.

Fining.—To fine your beer, should it be requisite, take an ounce of isinglass, cut small, and boil it in three quarts of beer, till completely dissolved: let it stand till quite cold, then put it into the cask, and stir it well with a stick or whisk: the beer so fined should be tapped soon, because the isinglass is apt to make it flat as well as fine.

Or, boil a pint of wheat in two quarts of water, and squeeze out the liquid through a fine linen cloth. A pint of this will be sufficient for a kilderkin of ale, and will both fine and preserve it.

Or, take a handful of salt, and the same quantity of chalk scraped fine, and well dried; then take some isinglass, and dissolve it in some stale beer till it is about the consistence of syrup: strain it, and add about a quart to the salt and chalk, with two quarts of molasses. Mix them all well together, with a gallon of the beer, which you must draw off; then put it into the cask, and take a stick, or whisk, and stir it well till it ferments. When it has subsided, stop it up close, and in two days you may tap it. This is sufficient for a butt.

Or, take a pint of water, and half an ounce of unslaked lime: mix them well together, letting the mixture stand for three hours, that the lime may settle at the bottom. Then pour off the clear liquor, and mix with it half an ounce of isinglass, cut small and boiled, in a little water; pour it into the barrel, and in five or six hours the beer will become fine.

There can be no doubt but that beer properly prepared is a very wholesome beverage, and preferable to toast and water, or water itself. By brewing it yourself you avoid drinking those adulterated beers usually vended, replete with Cocculus Indicus (Indian berry), opium, or even worse ingredients, as sugar of lead, sometimes used to recover beer, as well as wine when pricked.

WINTER WHEAT.

TRITICUM HIBERNUM.

Class III. Triandria. *Order* II. Digynia.

Essent. Gen. Char. *Corolla* of two valves, solitary, appearing three-flowered.

Spec. Char. *Calyx* four-flowered, bellied, smooth, imbricated, nearly without a barb.

HISTORY.

This differs from the æstivum, or Summer Wheat, chiefly by being a biennial, whereas the other is an annual; and the calyx of the æstivum is rough, whereas that of the hibernum is smooth.

Sp. 1. Triticum Æstivum. D.

Sp. 2. Triticum Hibernum. E. L.

By some these are considered only as varieties, not as distinct species. The latter is the most productive, and is most commonly cultivated on that account; for there is no material difference between the grains they produce, which are indiscriminately employed for every purpose.

Wheat flour consists principally of gluten, starch, albumen, and a sweet mucilage. These may be separated by forming the flour into a paste with a little water, and washing this paste with fresh quantities of water, until it runs from it colourless. What

remains is the gluten, which, if not the same, is very analogous to the fibrine of animal substances. From the water with which the paste was washed, a white powder, amylum (starch), separates on standing. The albumen and sweet mucilage remain dissolved in the water. By evaporating it, the albumen first separates in white flakes, and the sweet mucilage may be got by total evaporation.

It is the presence of gluten which characterizes wheat flour; and on the due admixture of it with the other constituents depends the superiority of wheat flour for baking bread.

Bread.—Bread is made by working the flour into a paste with water, a quantity of some ferment, such as yeast, and a little salt, to render it sapid, allowing the paste to stand until a certain degree of fermentation take place, and then baking it in an oven heated to about 488°. During the fermentation a quantity of gas is formed, and as it is prevented from escaping by the toughness of the paste, and dilated by the heat of the oven, the bread is rendered light and spongy. In this process the nature of the constituents of the flour is altered, for we are not able to obtain either gluten or starch from bread.

Use.—Bread is not only one of the most important articles of nourishment, but is also employed in pharmacy for making cataplasms, and giving form to more active articles. An infusion of toasted bread, known better by the appellation of *toast and water*, has a deep colour and pleasant taste, and is an excellent drink in febrile diseases, and debility of the stomach.

Great disputes have been raised about bread; but it is evident, from the form of our teeth, that we are both carnivorous and graminivorous. We possess canine teeth; and teeth for grinding, as the sheep, ox, &c.; and it is found that the mixture of the two foods suits most constitutions. Bread also carries down a quantity of saliva, so necessary for digestion, and corrects the natural tendency to putrescency in animal food: but in some weak stomachs bread does not easily digest, for animal food is with greater facility converted into chyle than vegetable; and such must refrain altogether, or be sparing of bread. New bread is prejudicial, as imbibing less saliva, and if taken in great quantity will distend the stomach, so as afterwards to produce a relaxation of that organ.

As respects children, bread and milk constitutes their first food, and oftentimes biscuits made without butter, and tops and

bottoms, are formed into powder and mixed with the milk, as being supposed to be less acescent. Sometimes children are imprudently attempted to be reared by bread alone, boiled in water, which is called pap, when they become emaciated and rickety; for the bones of children are composed chiefly of the phosphate of lime, which is in abundance in the woman's milk; and when weaned, if cow's milk is thought not so well to agree, I have ordered asses' milk, which comes the nearest to the human milk. As respects milk, parents ought to know, that before it can nourish, it must be first curdled in the stomach; and rennet is what Nature hath destined in the calf's stomach for this very purpose, which is so frequently an unnecessary object of terror to the tender parent. Where the stools of infants are curdly, or gripy, the defect is in the chylopoietic viscera (stomach and bowels), not in the food; and rhubarb ought to be given (Vide our article Rhubarb), or a little calcined magnesia. But by all means avoid Dalby's carminative, Godfrey's cordial, syrup of poppies, and other heating drugs for your infant; for these are the snares that catch the ignorant, delude, entrap, and, alas! root out myriads scarce before they have seen the light of day. Mothers ought carefully to watch that the food is not sour, and often make it fresh; for until there be a law to punish careless nurses, sour food will perpetually be crammed down the throats of innocent babes.

Starch.—Starch is a fine white powder, generally concreted in friable hexagonal columns, smooth to the feel, and emitting a particular sound when compressed. It has neither taste nor smell. It is decomposed by heat. It is not soluble in cold water or in alcohol. Warm water converts it into a kind of mucilage, which on cooling assumes a gelatinous consistence. This jelly, when dried by heat, becomes transparent and brittle like gum, but is not soluble in cold water. Starch, after being thus dissolved in hot water, cannot be reduced to its original state. It is precipitated by infusion of galls, and the precipitate is redissolved on heating the mixture to 120°, but is not soluble in alcohol. It is found in many vegetables, combined with different substances. Fourcroy, accordingly, makes various species of it; as, combined,

1. With gluten or fibrine; as in wheat, rye, and other similar seeds.
2. With extractive; as in beans, pease, lupins, &c.

3. With mucilaginous matter; as in the potatoe, and many other roots, and in unripe corn.
4. With saccharine matter; in most roots, and in corn after it has begun to germinate.
5. With oil; in the emulsive seeds, almonds, &c.
6. With an acrid principle; as in the root of the burdock, jatropha manilot, arum, asarum, and other tuberous roots.

MEDICAL USE.

Starch, in a medical point of view, is to be considered as a demulcent; and accordingly it forms the principal ingredient of an officinal lozenge, and a mucilage prepared from it often produces excellent effects, both taken by the mouth, and in the form of a clyster, in dysentery and diarrhœa, from irritation of the intestines.

Mucilage of Starch. (Mucilago Amyli. E. L. D.)

Take of starch, three drachms;
——— water, one pint:
Triturate the starch, gradually adding the water; then boil them a little.

The Edinburgh college use half an ounce of starch to one pound of water. The mucilage thus formed is very useful in those cases where a glutinous substance is required: it is often successfully employed as a clyster in diarrhœas depending on acrimony in the intestines.

There can be no doubt but starch clysters have proved extremely useful in checking diarrhœas, and in disorders of children, or infants; but the practitioner ought to remember, that the purging is often an effort of nature to get rid of irritating offensive matter in the bowels, as acrimonious green bile, &c.; and here it would be criminal to palliate, as is too often the case, opiates being also added, by which means thousands of innocent victims have fallen by this delusive practice. The enemy, instead of being pent up in the bowels, must be driven out by cathartic medicines, especially rhubarb, to which columba may be added, or vitriolated kali, and the starch used only as an *adjuvant*, to blunt the violence of the acrimony: in long protracted diarrhœas much advantage may be derived, but not so much from correcting acrimony as from some astringent property in the starch itself. In this latter disease, a dessert-spoonful of the starch mucilage in some agreeable simple water,

sweetened with a little sugar, may be taken every hour or two; and this is more particularly serviceable when by the flux, or acrimony, the mucus of the bowels is taken away, and they are left undefended.

Bran.—Bran is the husk of wheat, possessing a small proportion of farinaceous matter; and a decoction of this, sweetened with a little honey, or sugar, is a sovereign remedy, amongst the vulgar, for a bad cold; but its chief virtue is in the sugar, or water if you choose, like most of the French *petites ptisanes*, with veronica, and other herbs; and these, indeed, keep up perspiration, being taken warm, supply the place of more nutritious food, moisten the fauces, and cure such complaints often better than medicines of primary importance.

Agriculture.

It cannot be the object of these pages to treat on the subject of agriculture; but its principles may be here casually explained. Vegetable mould, the decomposition of animal and vegetable substances, constitutes the best soil, as this retains the proper quantity of moisture, imbibing it like a sponge, is attractive of oxygen, which uniting with its contained carbon, is the true pabulum, or food of plants, and is of a proper consistency to suffer the roots to pervade it, and support the plants. Clay, on the contrary, is too hard, resists the admission of water, and contains no carbon. Gravel like sand is too yielding, suffers water to pass through its substance, gives little stability, and contains no vegetable food. The manure for clay is gravel, or sand; and *vice versâ*. The operation of manures is to impart to clayey or gravelly soils carbon; of lime, to hasten on incipient fermentation, soon converting decaying animal and vegetable substances into carbon; of ploughing, to expose a larger surface for the imbibing of oxygen, and a more rapid decomposition of vegetable matter, and for the destruction of weeds.

CULTIVATED OAT.

AVENA SATIVA.

Class III. Triandria. *Order* II. Digynia.

Essent. Gen. Char. *Calyx* of two valves, many-flowered; the dorsal husk turned in.

Spec. Char. Paniculate: *Calyx* only two-flowered: *Seeds* smooth, one-barbed.

DESCRIPTION.

It is too generally known to need any.

HISTORY.

The oat is also a plant, like wheat, whose native country is not discovered, which is very generally cultivated in northern countries, and in many places furnishes the principal subsistence. It is sometimes mixed with wheaten flour, and made into

bread. When simply freed from the husks, this grain gets the name of *groats*, but it is more frequently ground into *oatmeal*. Groats are made use of in broths. Oatmeal is baked with salt and water into cakes, or, with the same additions, is boiled to form porridge. An infusion of the husks in water, allowed to remain till it becomes acidulous, is boiled down to a jelly, which is called *sowins*. In all these forms it is nutritious, and easy of digestion.

MEDICAL USE.

Gruels or decoctions, either of groats or oatmeal, either plain or acidified, or sweetened, form an excellent drink in febrile diseases, diarrhœa, dysentery, &c.; and from their demulcent properties prove useful in inflammatory disorders, coughs, hoarseness, roughness and ulcerations of the fauces. Porridge is also frequently applied to phlegmonous swellings to promote their suppuration.

This also may be deemed rather an *adjuvant*, than an active medicine, and in sickness gruel forms an excellent supper. Mixed with bread and milk it is called porridge, and makes a good breakfast or supper for children, sweetened with a little sugar; others put butter to it. In incipient sore throats pepper is employed, and taken at bed-time, which occasions the swellings to disappear.

DYER'S MADDER.

RUBIA TINCTORUM.

Class IV. Tetrandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* one-petalled, campanulate: *Berries* two one-seeded.

SPEC. CHAR. *Leaves* in whorls: *Stem* aculeate.

DESCRIPTION.

THIS plant grows to two feet in height; its stalks are square and rough; its leaves oblong and narrow, and stand four at each joint, in the manner of a star. Its flowers are produced in clusters at the upper part of the stalks, and are very small, and of a pale yellowish-green colour; these are succeeded by a fruit containing two seeds.

HISTORY.

Madder is perennial, and is cultivated in large quantities in England, from whence the dyers are principally supplied with it. It has been said to grow wild in the south of England, but the rubia peregrina was mistaken for it.

The roots consist of articulated fibres, about the thickness of a quill, which are red throughout, have a weak smell, and a bit-

terish astringent taste. For the use of the dyers, they are first peeled and dried, then bruised and packed in barrels. Madder possesses the remarkable property of tingeing of a red colour the urine, milk, and bones, of animals which are fed with it.

MEDICAL USE.

It is said to be useful in the atrophy of children, and some believe in its reputed powers as an emmenagogue.

It is given in substance in doses of half a drachm, several times a-day, or in decoction.

Like every other remedy possessing a powerful colour, it is supposed to be a cure of the yellow jaundice, but with no better foundation, although it colours the urine of a bright red, which has made some who have taken it conceive they have made bloody water. It is said by Haller, that merely holding the root in the hand produces this effect. Cows, who are remarkably fond of the plant, give also a red milk, but it makes a yellow butter. Hence some have advised the use of this plant in dropsy, but the success is doubtful. The great Boerhaave, speaking of it, says:

"Radix vino, cerevisiæ, vel aquæ incocta dat potum, qui aperiendo et roborando agit in utero, melancholia, sabulo renum, ictero, morboque hypochondriaco, sanguine coagulato, hydrope, et contusione, urina obstructa,—præsertim si hæc decocta melle edulcorentur, et per aliquot dies successivos usurpentur. Alii plantam summopere adstringentem esse dicunt, sed tamen inter resolventes accipitur; panni inde rubro colore tincti et gesti supra corpus nudum podagricis et arthriticis prosunt."

"The root given in wine, ale, or water, both acts as a corroborant and aperient in uterine disease, melancholy, gravel or stone in the kidneys, jaundice, hypochondriasis, coagulated blood, dropsy, contusion, obstruction in passing water,—especially if sweetened with honey, and continued for several days. Many assert that it is astringent, but it is rather to be conceived as a resolvent, and hence cloth dyed with the same, and placed upon a gouty or arthritic limb, has done service."

That it even coloured the bones was first noticed by Mizaldus, but not known in England until Mr. Belchier published an account in the Philosophical Transactions, vol. xxxix. p. 287, of a pig and a cock, whose bones became red by eating madder mixed with their food. Since that period various experiments have been made, from which it appears that the colouring matter

of madder affects the bones in a very short time, and that the most solid or hardest part of the bones first receives the red colour, which gradually extends, *ab externo*, through the whole osseous substance, while the animal continues to take the madder along with its food; and if this root be alternately intermixed and employed for a sufficient length of time, and at proper intervals, the bones are found to be coloured in a correspondent number of concentric circles. This in time becomes completely taken up, showing that every part of us is removing and regenerating every instant of our being; and this not only with the soft parts, but even the very bones!

Probably this led to the application of this plant in diseases of the bones; and Haller asserts that it has been found good in mollities ossium, softness of the bones, and even dissipated nodes very perceptible to the finger.

Mr. Levret, Haller says, speaks of a cure of the rickets by means of this plant; and that he himself cured a young lady, fourteen years of age, using with it only a ptisan of polypody and a few grains of rhubarb each day.

As to its being a cure for the atrophy of children, mentioned in the New Edinburgh Dispensatory, which is usually so extremely correct, it seems hardly adapted for that purpose; for the animals who were fed upon this substance became emaciated, and died of atrophy, unless the diet was changed; and given in pellets to pigeons, they vomited them up.

As an emmenagogue, Dr. Home published in 1780 his Clinical Experiments, in which he asserts it to be one of the strongest and safest emmenagogues with which we are acquainted; and relates nineteen cases of obstructed menstrua in which it was tried, and tells us that fourteen of them were cured. He gave the madder in powder, half a drachm four times a day; and he observes, that it produced no sensible effects in the stomach or bowels, or in promoting any of the secretions.

Portal recommends the infusion as a great resolver in cases of contusion.

Old Gerard mentions also that it is good in staying the bloody flux.

Dr. Cullen thinks it a plant deserving slight estimation, and more worthy the attention of the dyer than the physician; but we should be sorry to see our short catalogue of drugs abridged, unless from a wider experience than has been hitherto made of it.

COMMON GREAT PLANTAIN,

OR

WAYBREAD.

PLANTAGO MAJOR.

Class IV. Tetrandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* four-cleft: *Limb* reflexed: *Stamina* very long: *Capsule* two-celled, cut around.

SPEC. CHAR. *Leaves* ovate: *Scape* round: *Spike* composed of imbricated floscules.

DESCRIPTION.

IT is a plant with a fibrous root, sending out long oval leaves irregularly subdentate, of a pale green, and ribbed; these are seven, often five, and sometimes nine: the footstalks are leafy. The flower-stems also proceed from the root, and are a span in height, crowned with a spike of clustered flowers which are exceedingly minute. It is common in pastures.

MEDICAL USES.

Of this plant I shall begin by giving the old opinion of its virtues:

1. Plantain is good for vlcers that are of hard curation, for fluxes, issues, rheums, and rottennesses, and for the bloudy flux: it stayeth bleeding, it heales vp hollow sores and vlcers, as well old as new.

2. The juice or decoction drunken stoppeth the bloudy flux, and all other fluxes of the belly, stoppeth bloody water; also spitting of blood, and all issues of bloud in man or woman, and desire to vomitt.

3. Plantain leaves stampt and used with yelks of egges, stayeth the inordinate flux of the terms, although it haue continued many yeares.

4. The root of plantain, with the seed, boiled in white wine and drunke, openeth the conduits or passages of the liver and kidneys, cures the jaundice, and ulceration of the kidneys and bladder.

5. The juice dropped in the eies cooles the heate and inflammation thereof. I find in antient writers many good-morrowes (sayings), which I think not meet to bring into your memorie againe; as, that three roots will cure one griefe, foure another disease, six hanged about the necke are good for a third; all which are but ridiculous toyes.

6. The leaves are singular good to make a water to wash a sore throat or mouth.

7. The leaves of plantaine stamped and put into oile olive, and set in the hot sun for a moneth together, and after boiled in a kettle of seething water, which we call balneum Mariæ, and then strained, prevaile against the pains in the eares, and the matrix, being cast with a syringe into the other parts before rehearsed, or the paines of the fundament, as prooued by a learned gentleman, Mr. Godowrus, sergeant surgeon to the queen's majistie.—Old Gerard.

It was once received in the Edinburgh, but not in the London Pharmacopœia, and how far it may deserve a place in either deserves here to be inquired. It appears to be the great vulnerary of the ancients, and the leaves are now outwardly used by the common people to all fresh wounds. It is curious that it is the chief remedy for the cure of the bite of the rattlesnake, for which dis-

covery an Indian received a great reward from the assembly of South Carolina. Trajus mentions it as an ingredient in Julian Paulmer's "Pulv. ad rabiem," powder against the bite of a mad dog. It was inwardly used when any bruise had happened producing spitting of blood: "Adversus vomitum et expuitionem sanguinis, nullum certius et præsentius remedium." Boyle de Util. Phil. Nat. p. 150. It was supposed that persons subject to miscarry might be prevented from such accidents: "Mulierculæ gallinæ, toto gestationis tempore, ad abortum præcavendum, singulis fere diebus sumunt sem. plantaginis dr. ss. in jusculo, aut ovo, et non sine fructu." River. Prax. p. 479. In ague it was found to be efficacious; and Bergius says, "Plurimæ sunt narrationes de utilitate radicis plantaginis in tertianis. Periculum ipse feci, dosi largiori, scil. a drachmis 3 aut 6, quovis die, sub apyrexia, in vernalibus autem febribus subinde opem tulit." Trajus says that it is very serviceable in consumptions; and indeed the seeds are highly mucilaginous. He adds, "that the country people give unc. 2 to unc. 4 of the expressed juice in the beginning of an ague fit. Two drachms of the extract, and one drachm of the seed, stops all fluxes, and all kinds of hæmorrhages. It is good in dysentery, hæmoptoe, hæmorrhoidal flux, or too much of the courses, and in fluor albus."

In short, there is too much reported of the medicinal virtues of this herb to have it as yet discarded from our Pharmacopœias; but I have not had myself any experience of them.

CONTRAYERVA.

DORSTENIA CONTRAYERVA,
VEL
DRAKEA CONTRAYERVA.

Class IV. Tetrandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Receptacle* common, one-leaf, fleshy, in which the seeds are nested.

SPEC. CHAR. *Scapes* radical: *Leaves* pinnatifid-palmate serrate: *Receptacle* quadrangular.

DESCRIPTION.

This plant is low and small, rising singly from the root, and amongst them single naked stalks, bearing each a square receptacle of the seeds. The flowers are exceedingly minute, and upon close inspection are found to be a compound flower with male and female florets.

HISTORY.

This plant is perennial, and grows in South America and some of the Caribbean islands.

The root is knotty, an inch or two long, and about half an inch thick, of a reddish brown colour externally, and pale within: long, rough, slender fibres shoot out from all sides of it, and are generally loaded with small round knots. It has a peculiar kind of aromatic smell, and a somewhat astringent, warm, bitterish taste, with a light and sweetish kind of acrimony, when long chewed: the fibres have little taste or smell; the tuberous part, therefore, should be alone chosen.

This root contains so much mucilage, that a decoction of it will not pass through the filter. Neumann got from 480 parts, 190 watery extract, and afterwards with alcohol 7; and inversely 102 alcoholic, and 60 watery. I find that the tincture reddens infusion of litmus, is precipitated by water, and has no effect on the salts of iron.

Nicholas Monardus, almost two centuries ago, first makes mention of the plant called Contrayerva; and as this name is of Spanish origin, signifying 'antidote to poison,' it might apply to any plant supposed to possess such virtue. We are told by Clusius, that he received from sir Francis Drake some roots which were brought from Peru, where they were highly valued, and reported to counteract the effects of serpents and all other kinds of poisons. This plant was named, in honour of the circumnavigator, Drakea, and is supposed to be the same as the present. Plumier (Nov. Gen. Plant.) called it Dorstenia; and Linnæus has followed the same title.

MEDICAL USE.

Contrayerva is a gentle stimulant and diaphoretic, and is sometimes given in exanthematous diseases, typhus, and dysentery. Its dose is about half a drachm.

As to its being an antidote against animal and vegetable poisons, little is known to European physicians; but it possesses certainly a stimulant property. Hence it is given as a diaphoretic and antiseptic in low and malignant fevers, small-pox, and bad state of measles; and though used freely creates no considerable degree of heat. The dose is from ten grains to a drachm in substance in decoction or infusion to half a drachm, or more. It is usually joined with the common effervescing draught, given in the state of effervescence.

PREPARATIONS.

The Royal London College only order the following:

COMPOUND POWDER OF CONTRAYERVA. (Pulvis Contrayervæ compositus. L.)

Take of contrayerva, powdered, five ounces;
——— compound powder of crabs claws, one pound and a half:
Mix them.

This medicine, says the author of the Edinburgh Pharmacopœia, has a very good claim to the title of an alexipharmic and sudorific. The contrayerva, by itself, proves very serviceable in low fevers, where the *vis vitæ* is weak, and a diaphoresis to be promoted. It is possible that the crabs claws are of no further service than as they divide this active ingredient, and make it sit more easily on the stomach.

I have likewise used this remedy with much success in the diseases incident to children, where the bowels appeared to require an absorbent, and the vital actions wanted to be roused, and the pores to be opened; and have found good from the powder of contrayerva, without the composition, in phagedenic ulcers and incipient mortifications.

There are some who would also discard this medicine from our Pharmacopœias; but, as I observed before, we have no articles to spare.

Lewis mentions an extract made by rectified spirits which tastes strongly of the contrayerva, and leaves in the mouth a durable, glowing, vibrating kind of pungency, like that of peppermint, but far milder. This deserves to be tried.

WHITE SAUNDERS.

SANTALUM ALBUM.

Class IV. Tetrandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* four-toothed: *Corolla* four-petalled; with the petals growing on the calyx, besides four glands: *Berry* inferior, one-seeded.

HISTORY.

THIS valuable tree is a native of many parts of India. Its wood is the White and Yellow Sanders or Sandal wood, Santalum album et flavum of the Materia Medica; both being the produce of the same tree, and not, as Garcias says, of different trees.

Most trees in India, when large and old, become coloured towards the centre: that part is always much more hard and durable than the exterior uncoloured part. Thus with the sandal tree; the centre, when the tree becomes large, acquires a yellow colour, great fragrance, and hardness; whilst the exterior part

of the same tree is white, less firm, and scarcely with any fragrancy. It is only the yellow part that is in use; and the larger and older the tree the more valuable its wood, which possesses the highest fragrance, for which it is valued.

MEDICAL VIRTUES.

Lewis, speaking of this wood, says, that it has a bitterish aromatic taste, accompanied with an agreeable kind of pungency. Distilled with water it yields a fragrant essential oil, which thickens in the cold into the consistence of a balsam, approaching in smell to ambergris, or a mixture of ambergris and roses: the remaining decoction, inspissated to the consistence of an extract, is bitterish and slightly pungent. Rectified spirits extract, by digestion, considerably more than water: the colour of the tincture is a rich yellow. The spirit, distilled off, is lightly impregnated with the fine flavour of the wood: the remaining brown extract has a weak smell, and a moderate balsamic pungency. This wood, therefore, though at present among us disregarded, promises to have a good claim to corroborant virtues, ascribed to it by Hoffmann and others.

It has no affinity with the Santalum rubrum, Red Saunders, which falls under another class and order; nor has the White Saunders a place in either the London or Edinburgh Pharmacopœias.

CLEAVERS.
GOOSE-GRASS.
GALIUM APARINE.

Class IV. Tetrandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* monopetalous, flat: *Seeds* two, roundish.

SPEC. CHAR. *Leaves* eight, keeled, rough, with small prickles bent back: *Stem* also beset with similar prickles, jointed, villous: *Fruit* hispid.

DESCRIPTION.

THIS plant rises from four to six feet, climbing up other plants. The leaves are six or eight in a whorl, lanceolate, upper side rough with sharp prickles. The stem is square, the angles being guarded with sharp prickles, bent down. The flowers are small, inconspicuous, and white, on rough footstalks. The corolla is wheel-shaped, and divided into four segments. These change into a fruit rather large, composed of two berries, slightly adhering together, covered with hooked prickles, containing two seeds.

HISTORY.

It is very common about cultivated grounds and hedges, producing its flowers from June till September. It is chopped up, and

given to goslings or young geese, who eagerly devour it. The goose and gander refuse it. Its taste is somewhat bitter and acrid.

MEDICAL VIRTUES.

Dioscorides mentions an ointment of great efficacy made from the expressed juice of this plant mixed with hog's lard, for discussing tumours in the breast; and Gaspian, an Italian, adopted the same with great success. After some eminent surgeons have failed, I have ordered the expressed juice mixed with linseed meal, to be applied to the breast, with a tea-spoonful of the same to be taken fasting in the morning; and this plan, after a short time, has removed very frightful indolent tumours in the breast. It is supposed to be useful in scurvy, and for hæmorrhages of the nose, and spitting of blood. Boerhaave says, its leaves made into tea are an excellent remedy in epilepsy and gout.

ALKANET.
DYER'S BUGLOSS.
ANCHUSA TINCTORIA.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* funnel-shaped, the mouth closed with prominences: *Seeds* marked at the base.

SPEC. CHAR. The plant tomentose: *Leaves* lanceolate, obtuse: *Stamens* shorter than the corolla.

DESCRIPTION.

It grows to about a foot in height; the leaves are rough and large, and stand alternate on the stalks; the flowers are rather small, and purplish or blueish, and are succeeded each by four seeds.

HISTORY.

This plant is a native of Europe: it is sometimes cultivated in our gardens; but the greatest quantities are raised in Germany or France, particularly about Montpelier, from whence the dried roots are usually imported to us. The alkanet root produced in England is much inferior in colour to that brought from abroad; the English being only slightly reddish, the others of a deep purplish red; and it has been suspected, but without sufficient foundation, that the foreign roots owe part of their

colour to art. The cortical part of the root is of a dusky red, and imparts an elegant deep red to alcohol, oils, wax, and all unctuous substances, but not to watery liquors.

Alkanet root has little or no smell; when recent, it has a bitterish astringent taste, but when dried scarcely any. Its chief use is for colouring oils, ointments, and plasters. As the colour is confined to the cortical part, the small roots are best, having proportionally more bark than the large.

This species of anchusa is native of Montpellier, and its root is imported to us from the southern parts of Europe. It is accepted into the Edinburgh, but not into the London Pharmacopœia, for its sole use with the former is allowed to be the colouring certain ingredients, one-fortieth part giving a fine deep red; and hence it is usually employed in what are called lip-salves.

But let us view it, if possible, in a truly medical point of view. The great Boerhaave says, "the root of the alkanet is very opening, and afterwards acts as an astringent; hence it is usefully administered in decoction against diarrhœa. Externally it is employed for drying up old inveterate ulcers." Sir John Hill says "it promotes the discharge by urine, and is good in nephritic cases." The author of this work can say nothing respecting the use of alkanet, except, that he has occasionally ordered bark draughts to be coloured with it, to conceal a remedy which the patient was absurdly prejudiced against; and it has been also used for this purpose when medicines would otherwise possess only the appearance of clear water. Faith, it is justly said, has no small concern in the cure of diseases.

WATER TREFOIL,
OR
BUCKBEAN.
MENYANTHES TRIFOLIATA.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* hirsute: *Stigma* two-cleft: *Capsule* one-celled.

SPEC. CHAR. *Leaves* ternate.

DESCRIPTION.

THIS beautiful plant is common in bogs. The flower-stalks shoot out often twelve inches in height, bearing many elegant flowers in a spike. These are white, but commonly rose-coloured on the outside, and in the inside so finely fringed as to produce an extraordinary appearance. Its leaves are three together, resembling our garden bean, or the trefoil, whence its name.

HISTORY.

This perennial plant is very common in marshy situations, and is one of the most beautiful of our native flowers. It flowers in June and July.

The leaves grow by threes on footstalks. They are excessively bitter, and their bitterness is extracted by infusion. They are said to be sometimes used in brewing ale, and that one ounce will go as far as half a pound of hops.

MEDICAL VIRTUES.

A drachm of them, in powder, purges and vomits. In infusion or extract they have been recommended in intermittents, in several cachectic and cutaneous diseases. The dose of the extract is from ten to twenty grains.

This valuable native merits more attention than is commonly given to it. It seems as if Providence had kindly placed the remedy in those situations most productive of agues*, and that we have no reason to cross the ocean for the cure of intermittents. A cheap remedy is at hand. The blackness manifested by adding a solution of green vitriol to the juice, or to a strong infusion of the leaves of buckbean, is a sufficient test of its astringency. The great Boerhaave says, "Contra tertianam et quartanam febrim valet;"—"It overcomes the tertian and quartan ague." Haller mentions the same fact, "that intermittents yield to it:" and in the last war the Germans made use of this remedy, with almost unvaried success, instead of bark. Ray mentions a similar event: "Herba hæc Germanorum amara, nuperis annis, in magna existimatione esse cœpit. Nonnulli ad morbum articularem; alii ad scorbuticos affectus, ad febres intermittentes, et catarrhos eam commendant, et in hydropicis affectibus valde profuisse existimant." Dom. Tancred Robinson, R. p. 285.

As to cachectic disease, that is disease and emaciation, debility of the primæ viæ, in these cases bitters are known to be of service. But the cure of the rot in sheep from this herb may have induced this opinion: "Dom. Tanc. Robinson se sæpius observasse ait oves tabidas, in paludes hac herba abundantes, compulsas, ejus esu sanitati restitutas."—R. Hist. Boerhaave says: "Folia ejus decocta conveniunt in cachexia."

In scorbutic affections bitters have wonderful efficacy; and Sim. Paulli gives several instances of its extraordinary efficacy,

* It was a curious fact, noticed by Linnæus, that marsh miasmata are the cause of agues, and that lime being employed as manure in such situations overcame these miasmata, and the ague disappeared. I have myself traced this curious fact in several parts of England.

Vide Quad. Bot. edit. 1667, p. 156: "Its good effects in scorbutic and scrophulous diseases have been warranted by experience. Inveterate cutaneous diseases have been removed by an infusion of the leaves, drank to a quart a day, for some weeks." New Disp. p. 221. Boerhaave says: "Rusticis scorbuticis est planta commendatissima, si in cerevisia infusa cum hac fermentetur."

Lewis, speaking of this plant in his Materia Medica, says, "The leaves of the buckbean have a bitter penetrating taste, which they impart both to watery and spirituous menstrua: they have of late years come into common use as an alterative and aperient, in impurities of the humours, and some hydropic and rheumatic cases. They are usually taken in the form of infusion, with the addition of some acrid antiscorbutic herbs, which in most cases improve their virtue, and orange-peel, or some other grateful aromatic, to alleviate their ill taste: they are sometimes, among the common people, fermented with malt liquors, for an antiscorbutic dietdrink.

This plant has also obtained a name for the cure of rheumatism and gout. Boerhaave says: "Boreales hanc plantam summopere amant, et in scorbuto, qui a lento muco obsidente nervorum et musculorum membranas et juncturas oritur, hoc modo utuntur: ℞. foliorum menyanthes manip. duas, contere in pulpam cum sero lactis, decoque, hoc decoctum mane jejuno stomacho assumatur. In doloribus rheumaticis est optima planta, præsertim in hoc rheumatismo, qui hæret circa juncturas et nervorum membranas, hæc herba instar potus thée adhibita optime convenit." Boerhaave was himself cured of gout by taking it mixed with whey. Alston says that he has seen very remarkable good effects from this plant in gout, in keeping off the paroxysms, though not ultimately to the patient's advantage; and, indeed, all these bitters have been from time to time vaunted as curing the gout, but, as the great Cullen says, "after a time these cured people have fallen into worse diseases, generally *hydrops pectoris*" (water in the chest). But in chronic rheumatism much advantage is derived from a stimulating bitter like the present; more especially as it also opens the bowels, and removes acrid bile.

Viridet cured by this remedy a paralytic hypochondriac, and has placed this herb among the number of lithonthripics. Boerhaave also says, "Dolores nephriticos curat." As far as my

experience has gone, all bitters are favourable to gravel, and calculous complaints in the kidneys or bladder.

It is recommended by Boerhaave also as an outward application for dissolving glandular swellings: "Folia cum sale et vino contusa, et forma cataplasmatis adhibita, conducunt ad tumores frigidos scorbuticos lentosque dissipandos."

It is also recommended in dropsy in all stages, by both Boerhaave and Haller: "Folia ejus decocta conveniunt in hydrope."

Its seeds are good in coughs of long standing, and diseases of the chest: "Semina prosunt in tussi inveterata et pulmonum morbis."—Boerhaave.

Linnæus mentions that the common people, in times of scarcity, make bread of the dried roots, with a little meal.

The Laplanders also feed their cattle with the dried roots.

Respecting the dose, Haller says that a drachm of the powder of the leaves or stem, taken as a dose, opens the body, and often produces vomiting; but Boerhaave speaks of two handfuls at a time. As this plant loses its qualities by drying, like many other herbs potent when fresh, it will not readily obtain much rank as a medicine, where in winter, as in summer, remedies are wanted: but still I think it merits more attention than it has as yet received from English physicians.

INDIAN PINK.

SPIGELIA MARILANDICA.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* funnel-shaped: *Capsule* twin, two-celled, many-seeded.

SPEC. CHAR. *Stem* square: *Leaves* opposite.

DESCRIPTION.

THIS plant has a perennial fibrous root, whence rise single stems, beset with opposite oval-lanceolate entire leaves, and crowned with a spike of tubular monopetalous red flowers, having five stamina and one pistil. Each flower is succeeded by two round united bivalvular capsules, containing several small seeds.

HISTORY.

This plant is perennial, and grows wild in the southern parts of North America.

MEDICAL VIRTUES.

The root is celebrated as anthelmintic, particularly for the expulsion of lumbrici from the alimentary canal, and it often affords relief where no worms are discharged. Some order it in

doses of ten or fifteen grains, while others give it in drachm doses, alleging that the nervous affections it sometimes produces more readily happen from small doses, as the large ones often purge or puke: some prefer the form of infusion. An emetic is generally premised; and its purgative effect is assisted by some suitable additions. Infused in wine, it has been found useful in intermittents. Dr. Barton recommends it in the insidious remitting fever of children, which often lays the foundation for hydrocephalus.

In the year 1754, a letter from Dr. Lining, physician at Charles-town, North Carolina, was published in the first volume of the Edinburgh Physical and Literary Essays, in which he mentions that this root is a most excellent remedy against worms; and says that it is given either in powder or in infusion in boiling water, but that the powder is the most efficacious; that the dose to a child of three years of age was twelve grains in powder, or a scruple in infusion. As it has no taste, it may be mixed with milk, or given to children in the form of tea. Doctor Lining advises to add some rhubarb to it to keep the body open, and also a few drops of some of the essential oil of rue, or sabin, or wormwood, to prevent vertiginous effect, or other alarming symptoms, although unattended with actual danger, and which sometimes come on after taking this medicine. He usually repeated the medicine morning and evening for several days, with the expulsion of worms; and such cases as were mistaken for worms thereby were remarkably relieved; and he conceives this remedy as very desirable, from its want of taste, and certain efficacy and, upon the whole, one of the most harmless worm medicines.

Where any alarming symptom came on, which arose from a too large dose, as vertigo, pain of the forehead and eyes, or slight convulsions, these became relieved by a little weak brandy and water, or a drop or two of some essential oil in some peppermint water, or a glass of wine.

Dr. Garden, in the year 1771, published a further account of this medicine, in the third volume of the same Essays, in which he says, that, previous to its use, it is necessary to give a vomit, or a purge of rhubarb and calomel, which renders its application safe, and removes all danger of convulsions of the eyes, &c.; and that when these symptoms come on, it is proper always to give a common purge to remove the disagreeing medicine lodged in the bowels. He recommends giving to children from eight

grains of the powder to a scruple, or more, and to adults from sixty to seventy grains; and in infusion to the dose of two, three, or four drachms a day; observing, that he has known half a drachm of this root purge as briskly as the same quantity of rhubarb; that he never found it do good unless where it did purge; and that he had tried it with advantage in several hundreds of cases. He makes this remark, that by keeping, this medicine lost considerably of its virtues; for forty grains of the root, which had not been gathered above two months, operated as strongly as sixty which had been kept for fifteen months.

Dr. Home, of Edinburgh, in his Clinical Observations, mentions his having used this medicine, and found it to be a good anthelmintic. According to Lining, thirty large worms (the *teretes*) were at once voided by a negro girl by the use of this root. Dr. Home gave it to eight patients, three of whom passed worms; the other five did not, but were relieved from those complaints which were thought to have proceeded from worms. To children of eight years of age he gave ten grains of the powder, twice a day; and to adults half a drachm, four times a day: it produced no vertigo, dimness of the sight, convulsion of the eyes, or any other alarming symptom, but proved only purgative.

This medicine has not come into general practice, owing to the alarming effects said sometimes to have arisen from it, as likewise to its loss of virtues from keeping; but growing very well in this country, it deserves to be cultivated here, and bids fair to be a very useful addition to our arms against disease. In a few cases only I have seen any alarm produced; and as this soon went off, and the patients were relieved of worms, and that nasty viscid slime in which they are engendered, I am inclined myself to think well of this remedy.

SCAMMONY BINDWEED.

CONVOLVULUS SCAMMONIA.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* campanulate, plicate: *Stigmas* two: *Capsule* bilocular: *Cells* two-seeded.

Spec. Char. *Leaves* sagittate, behind truncate: *Flowers* on slender peduncles, two or three together.

DESCRIPTION.

The root is thick and large like bryony, black on the surface and white within, and it is full of an acrid milky juice; from this arise stalks weak and trailing, three or four feet high, and beset with triangular leaves like those of the common field bindweed. The flowers grow from the axillæ of these, are large, bell-shaped, and whitish, with a purplish or yellowish tinge. The seed-vessel is of a pointed form, and the seeds themselves angular and blackish.

HISTORY.

This scammony convolvulus is a climbing perennial plant, which grows in Syria, Mysia, and Cappadocia. The roots, which are very long and thick, when fresh contain a milky juice. This is obtained by removing the earth from the upper part of the roots, and cutting off the tops obliquely. The milky juice which flows out is collected in a small vessel sunk in the earth at the lower end of the cut. Each root furnishes only a few drachms; but the produce of several parts is added together, and dried in the sun. This is the true and unadulterated scammony. It is light, of a dark gray colour, but becomes of a whitish yellow when touched with the wet finger, is shining in its fracture, has a peculiar nauseous smell and bitter acrid taste, and forms with water a greenish milky fluid, without any remarkable sediment. In this state of purity it seldom reaches us, but is commonly mixed with the expressed juice of the root, and even of the stalks and leaves, and often with flour, sand, or earth. The best to be met with in the shops comes from Aleppo, in light spongy masses, having a heavy disagreeable smell, friable, and easily powdered, of a shining ash colour verging to black; when powdered, of a light gray or whitish colour. An inferior sort is brought from Smyrna in more compact ponderous pieces, with less smell, not so friable, and less easily powdered, of a darker colour, not so resinous, and full of sand and other impurities.

A resin is the principal constituent of scammony. Sixteen ounces of good Aleppo scammony give eleven ounces of resin and three and a half of watery extract.

MEDICAL USE.

Scammony is an efficacious and strong purgative. Some have condemned it as unsafe and uncertain, a full dose proving sometimes ineffectual, whilst at others a much smaller one occasions dangerous inflammation and gripes. This difference, however, is owing entirely to the different circumstances of the patient, and not to any ill quality or irregularity of operation of the medicine: where the intestines are lined with an excessive load of mucus, the scammony passes through without acting upon them; but where the natural mucus is deficient, a small dose of this or any other resinous cathartic irritates and inflames. Many have endeavoured to diminish the activity of this drug, and to correct its imaginary virulence, by exposing it to the fumes of sulphur, dissolving it in acids, and the like; but these only destroy a part of the medicine, without making any alteration in the rest. Scammony in substance, judiciously managed, stands not in need of any corrector: if triturated with sugar, or with almonds, it becomes sufficiently safe and mild in its operation. It may likewise be conveniently dissolved, by trituration, in a strong decoction of liquorice, and the solution then poured off from the fæces. The common dose of scammony is from three to twelve grains.

The action of cathartics have been variously considered by medical men. Some have entertained that this arises by small spiculæ irritating the sensible coats of the bowels; and these resinous cathartics are the more powerful on this account; and it certainly is a curious fact, the mild operation that scammony produces, with some other cathartics, when triturated with sugar, or blunted with the almond. It is generally given in cold phlegmatic habits, and forms the chief ingredient of those family draughts and pills so commonly used to obviate habitual costiveness.

Take of scammony, in powder, grains 10,
——— blanched almonds - drachm 1,
——— cinnamon water - - ounce 1,
——— syrup of ginger - - drachm 1:
Rub down the scammony with the almonds first, then add the syrup and cinnamon water gradually. For a purging draught, to be taken early in the morning.

Take of scammony, in powder - grains 10,
——— socotrine aloes - - - scruple 1,
——— Spanish soap - - - - drachm $1\frac{1}{2}$,
——— essential oil of cloves - drops 3,
——— syrup of ginger - a sufficient quantity:
Make thirty pills. Take three going to bed.

It forms also a chief ingredient in the famous basilic-powder, as it is called, so serviceable for removing what is commonly termed pot-belly in children.

Take of scammony, in powder,
——— calomel,
——— antimonial powder, equal parts, grains 2,
——— cream of tartar - - - - grains 10:
To be taken in currant jelly an hour after breakfast every other

day. It will often not only purge but vomit, which last effect will produce no harm.

The great Boerhaave says that this plant is an excellent remedy against the dropsy, provided the viscera are good: "Est planta laudatissima contra hydropem, modo viscera sint bona." He gave the flowers: "Flores recentes ad unciam dimidiam comesti cum oleo et aceto fortissimo sursum deorsumque purgant."

Many physicians have entertained great fears respecting this remedy. Boerhaave says, it quickly, if too freely given, converts the blood into water: "Si succus ex radice exprimatur, tum habetur succus scammonii, hic succus sanguinem in aquam cito convertit, et hinc venenatus est, si magna copia assumatur." But in moderate doses it is good against the bile, and as a hydrogogue to remove water: "Sed si caute adhibeatur, tum optime convenit, ubi purgandum, aqua ducenda et bilis." He recommends it in asthma: "Conducit in asthmate." Hoffmann also had dreadful apprehensions respecting this remedy. He says he never employed it, nor ever will; resolving always to abstain from colliquative poisons: "Ego nunquam in praxi mea in usu habui, nec in posterum habebo; me semper ab istiusmodi venenis colliquativis abstinens." Nevertheless, as a drastic purgative, in cold habits, it is very usefully employed.

PREPARATIONS.

The Royal London College order the following preparations:

ELECTUARY OF SCAMMONY. (Electuarium Scammonii. L.)

Take of scammony, in powder, one ounce and a half;
——— cloves,
——— ginger, of each, six drachms;
——— essential oil of caraway, half a drachm;
——— syrup of roses, as much as is sufficient:
Mix the spices, powdered together, with the syrup; then add the scammony, and lastly the oil of caraway.

This electuary is a warm brisk purgative. A drachm and a half contain fifteen grains of scammony.

COMPOUND POWDER OF SCAMMONY. (Pulvis Scammonii compositus. L.)

Take of scammony,
——— hard extract of jalap, of each two ounces;
——— ginger, half an ounce:
Powder them separately, and mix them.

The Edinburgh College thus direct:
Take of scammony,
——— super-tartrate of potass, equal parts:
Rub them together to a very fine powder.

In the first of these compositions the scammony is combined with another purgative more active than itself, and in the other with one much less so; which difference must be attended to in prescription. The ginger is an useful addition, and will render it less apt to gripe. The dose is from five to ten grains.

COMPOUND POWDER OF SCAMMONY WITH ALOES. (Pulvis Scammonii compositus cum Aloe. L.)

Take of scammony, six drachms;
——— hard extract of jalap,
——— socotrine aloes, of each an ounce and a half;
——— ginger, half an ounce:
Powder them separately, and mix them.

Here we have a combination of three powerful purgatives of the same kind; but what advantage these compositions have over the ingredients taken separately is not very apparent. Of the present, from five to ten grains is a sufficient dose for a costive habit.

POWDER OF SCAMMONY WITH CALOMEL. (Pulvis Scammonii cum Calomelane. L.)

Take of scammony, half an ounce;
——— calomel,
——— double refined sugar, of each two drachms:
Powder them separately, and then mix them.

In this case the calomel may often be found to be an useful addition to the scammony, as its mode of action is different, although it coincides with it in the general effect. The dose is from five to ten grains, used in costive habits, and to remove filthy sordes from the bowels.

It also properly enters into the composition of the COMPOUND EXTRACT OF COLOCYNTH (Extractum Colocynthidis compositum, L.); COMPOUND POWDER OF SENNA (Pulvis Sennæ compositus, L.); PILLS OF ALOES AND COLOCYNTH (Pilulæ Aloes cum Colocynthide).

JALAP BINDWEED.

CONVOLVULUS JALAPA.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Leaves* ovate, subcordate, villose underneath.

DESCRIPTION.

THIS plant has thick, fleshy, radish-like roots, full of a milky juice; the stalks are numerous, twining for support, and rising to about ten or twelve feet; the leaves vary, being heart-shaped, angular, oblong, or pointed, smooth, and stand alternately upon long footstalks; the flowers are usually two, on forked peduncles, bell-shaped, entire, plicate, of a reddish colour on the outside, and of a dark purple within. The calyx is composed of five small oval leaves. Each flower terminates in a wrinkled, roundish, pentagonal, umbilical fruit, about the size of a pepper-corn, including a white kernel.

HISTORY.

Jalap is a climbing perennial species of convolvulus. It is an inhabitant of Mexico and Vera Cruz, from which it was first imported in 1710. It is now cultivated in the botanical garden

of Charlestown, and flourishes in our own stoves. When recent, the root is white and lactescent; but it is brought to us in thin transverse slices, which are covered with a blackish wrinkled bark, and are of a dark gray colour internally, marked with darker or blackish stripes. It has a nauseous smell and taste; and when swallowed it affects the throat with a sense of heat, and occasions a plentiful discharge of saliva. When powdered it has a yellowish gray colour.

Such pieces should be chosen as are most compact, hard, weighty, dark-coloured, and abound most with dark circular striæ and shining points; the light, whitish, friable worm-eaten pieces must be rejected.

Slices of briony root are said to be sometimes mixed with those of jalap; but these may be easily distinguished by their whiter colour, and less compact texture.

Neuman got from 7680 parts, 2480 alcoholic, and then by water 1200; and inversely, 2160 watery, besides 360 which precipitated during the evaporation, and 1440 alcoholic: the tincture extracted from 7680 parts, gave, by precipitation with water, 1920.

MEDICAL USES.

Jalap in substance, taken in a dose of about half a drachm, proves an effectual, and in general a safe purgative, performing its office mildly, seldom occasioning nausea or gripes; but in hypochondriacal disorders, and hot bilious temperaments, it gripes violently, if the jalap be good; but rarely takes due effect as a purge. An extract originally made by water purges almost universally, but weakly; and at the same time has a considerable effect by urine: what remains after this process gripes violently. The pure resin, prepared by alcohol, occasions most violent gripings, and other distressing symptoms, but scarcely proves at all cathartic: triturated with sugar, or with almonds, into the form of an emulsion, or dissolved in spirit, and mixed with syrups, it purges plentifully in a small dose, without occasioning much disorder: the part of the jalap remaining after the separation of the resin, yields to water an extract, which has no effect as a cathartic, but operates powerfully by urine.

Jalap contains both a gummy and resinous principle, an ounce yielding, according to Cartheuser, about half an ounce of a gummy extract, and about two scruples of a resinous; neither

of them are so strong and purgative as when mixed; hence it is usually prescribed in substance from ten to fifteen grains; or it is usefully added in cold habits to accelerate the action of rhubarb, and in this form is found frequently to expel worms, being admirably adapted for the purpose. In very robust country habits jalap is a safe and good purge, producing its effects powerfully and certainly. In the rheumatism it is a very excellent purge; and is usefully employed mixed with two grains of gambodge in the dose of a scruple to carry off water in dropsies, as well as when combined with four or five grains of calomel. Being a powerful drastic purge, Hoffmann thought it highly improper for children and for weakly habits; but Cullen says, if it be triturated, before exhibition, with any hard powder, (and the crystals of tartar are the fittest for the purpose,) it will operate in smaller doses than when taken by itself, and at the same time act very moderately, and without griping. When triturated with hard sugar, in small doses it is a safe purge for children; and in this way they will receive it, the jalap having little taste.

PREPARATIONS.

Its medical preparations are:

TINCTURE OF JALAP. (Tinctura Convolvuli Jalapæ. E. Tinctura Jalapæ. L. D.)

Take of jalap, in coarse powder, three ounces (eight ounces L., five, D.);

——— diluted alcohol, fifteen ounces (two pints, L. D.):

Digest for seven days, and strain the tincture through paper.

Alcohol was formerly ordered for the preparation of this tincture; but diluted alcohol is a preferable menstruum, as it dissolves the active constituents of the jalap, as well as pure alcohol, and is less stimulating.

The water is an excellent addition, as it extracts so much of the gummy parts as correct the resinous, which are more active, and by itself very griping; and this tincture so made may be taken by itself, or mixed with syrup, from a drachm to half an ounce: but it is more frequently added, from the quantity of a drachm or two, to any purgative draught to quicken its operation.

The EXTRACT is thus prepared:

Take of jalap, reduced to powder, one pound;

——— of rectified spirits of wine, four pints:

Mix, and digest them for four days; pour off the tincture, and boil the residue which remains in ten pints of distilled water, and reduce it to two; then strain both the tincture and decoction through a cloth, evaporate them till they begin to thicken, and reduce them, by gentle evaporation, till they are of the consistence of pills.

By this means both the resinous and gummy matters are extracted, and it is employed in doses of from four to twelve grains. Triturated with equal parts of sweet almonds, its operation is rendered mild.

COMMON PERUVIAN BARK TREE.

CINCHONA OFFICINALIS.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* funnel-shape, petals woolly at their edges: *Capsule* beneath, two-celled with parallel dissepiment.

SPEC. CHAR. *Leaves* elliptic, underneath pubescent: *Limb* of the corolla woolly.

DESCRIPTION.

THE tree which produces the bark varies in its size. Woodville describes it as very lofty, and sending off large branches. Its leaves are oblong, three inches in length, and about an inch and a half in breadth. The flowers stand in clusters at the extremities of the branches, and are composed of a single tubular petal, whose border is divided into five segments. These are succeeded by capsules of the shape of an olive, which when ripe split open lengthwise, discovering two cells divided by a membrane, and contain each a number of small flatted seeds surrounded with a membranous edge.

HISTORY.

The bark commonly called Peruvian bark, of which the Edinburgh College enumerates three varieties;

1. The common, the yellow of some foreign authors.
2. The yellow, the orange of some foreign authors.
3. The red.

By the recent observations of the Spanish botanists, it is now, however, ascertained that these are not only the barks of distinct species of cinchona, but that probably each of them is indiscriminately taken from several different species. Ruiz and Pavon have described fifteen species natives of Peru and Chili; and if to them we add those of Tafalla and Vahl, twenty-five distinct species have been described, of which seven have been found in North America in the neighbourhood of Santa Fé, by Mutis. Cinchona, considered as a genus, is a mountainous tree, and is never found in the plains. It grows to a great height, and formerly its trunk was often thicker than a man's body. But since its bark has come into such general use, few trees are to be seen thicker than the arm. Indeed there is reason to fear that it will become still more scarce, as no attention is paid to its cultivation, and the trees always die after being stripped of their bark. This operation is performed in the dry season, from September to November. The bark is then carefully dried in the sun, and packed in skins, which contain from 100 to 150 pounds, and are called by the Spaniards *zeronne*. In these, coarse and fine pieces of the same kind of bark are promiscuously mixed, but they are afterwards sorted.

1. Common pale bark. This is said to be the bark of the *Cinchona cordifolia* of Mutis, under which he includes the *hirsuta, ovata, purpurea,* and *micrantha* of the Flora Peruviana, the *officinalis* of Linnæus, and the *pubescens* of Vahl.

In commerce we find several varieties of the common pale bark, the most remarkable of which are, the quilled bark, which comes from Loxa, and the flat bark, from Guanaco.

The bark which comes from Loxa consists of thin, singly or doubly rolled, pieces, four or five inches long, and scarcely a line in thickness; externally rough, of a grayish brown colour, and generally covered with a kind of lichen; internally of a cinnamon colour. Its fracture should not be fibrous or powdery, but even and shining. It has a peculiar aromatic smell, and a pleasant, bitter, astringent taste.

The bark which comes from Guanaco consists of much thicker, coarser, and flatter pieces; externally of a dark brown or almost black colour, but internally it has the same cinnamon colour; and in its resinous fracture, smell, and taste, it exactly resembles the former. When genuine, both varieties are excellent remedies, although the former be generally preferred on the continent and the latter in Britain.

2. Yellow Peruvian bark. This variety of bark has only been introduced into European practice since 1790, when it was sent from Santa Fé by Mutis. It is the bark of his *Cinchona latifolia*, under which he includes the *nitida, glabra,* or *lanceolata, fusca,* or *rosea, angustifolia,* or *tunita,* the *officinalis* of Condamine and Vahl. It consists of pieces about six inches in length, thicker, and less rolled up, than the common bark. Its internal surface is of a deeper red. It sometimes wants the epidermis, which is often as thick as the bark itself. It is lighter and more friable than the former variety; its fracture is fibrous; and when reduced to powder, its colour is paler. Its taste is much more bitter, astringent, and stronger, but its smell is weaker. Its decoction when hot is redder, but when cold, paler. Its solution strikes a deeper colour with sulphate of iron. It contains more of the active constituents than either of the others, but less gum than the common, and less resin than the red. It is much more powerful than the preceding species, and, according to Mutis, is the only one which is directly febrifuge. The epidermis should always be removed before it be powdered.

3. Red Peruvian bark is obtained from the *Cinchona magnifolia* of Ruiz and Pavon, the *oblongifolia* of Mutis. It occurs generally in much larger, thicker, flatter pieces, but sometimes also in the form of quills. It is heavy, firm, sound, and dry; friable between the teeth; does not separate into fibres; and breaks, not shivery, but short, close, and smooth. It has three layers: the outer is thin, rugged, of a reddish brown colour, but frequently covered with mossy matter; the middle is thicker, more compact, darker coloured, very resinous, brittle, and yields first to the pestle: the inmost is more woody, fibrous, and of a brighter red. Its powder is reddish, like that of Armenian bole.

Its astringency and bitterness are more intense, and it contains more resin than the pale bark. It is not, however, allowed by

Mutis to be like the yellow bark, directly febrifuge. It is said to be more frequently adulterated.

The great price of cinchona bark has sometimes tempted dishonest men to adulterate it with other similar and less powerful barks, and, what is still more blameable, with genuine bark, from which the active constituents have been entirely extracted by decoction with water.

In selecting cinchona bark, we must therefore take care, that, besides the characteristics already noticed, it be dense, heavy, and dry, not musty or spoiled by moisture, and that a decoction made of it have a reddish colour when warm, but when cold become paler, and deposit a brownish red sediment. Those pieces whose taste is simply intensely bitter, or very astringent, or nauseous, or merely mucilaginous, whose surface is smooth or polished, of a dark colour, or pale yellow, or red, which are tough or spongy, whose bark is fibrous, woody, or powdery, and their internal colour white or gray, are to be rejected.

There are few vegetable substances which have been subjected to analysis more frequently, and by abler chemists, than the cinchona bark. But from the difficulty of the subject, and from essential differences in the chemical properties of several varieties confounded under one denomination, contradictory results have arisen, and our knowledge of the subject is still imperfect. Vauquelin has lately done much to lessen this confusion, by showing that there are three, if not four, classes of cinchona bark, differing essentially in chemical constitution; but unfortunately he has not been able to designate with botanical accuracy the individuals he found to belong to each.

The first class precipitate astringents, but not gelatine.

The second precipitate gelatine, but not astringents.

The third precipitate both astringents and gelatine; and,

Lastly, some barks confounded with these precipitate neither astringent nor gelatine; but these Vauquelin, viewing the genus chemically, does not consider as cinchonas.

Individuals in each of the three first classes are capable of curing intermittents, which shows how insufficient our analysis, in its present state, is from explaining the connexion between the medical virtues and chemical properties of this remarkable genus. Besides these principal differences, on which Vauquelin founds his classification, cinchona barks vary in the effects of many chemical agents. The infusions of some kinds redden

turnsole, others do not affect it; some impart a deep colour to water, others very little; some affect certain metallic solutions, which others do not; and the decoctions of some kinds remain transparent after becoming cold, others grow turbid as they cool, and deposit a copious precipitate. The following mode of analysis, however, will give an idea of the composition of the second class:—The cold infusion has a red colour, more or less brown or yellow; bitter taste, with more or less astringency; becoming in a few days covered with a green mould. On evaporating the infusion, if it be permitted to cool repeatedly during the process, it becomes turbid, and deposits a precipitate for several times. If these precipitates be separated, and the supernatant fluid, after it ceases to become turbid on cooling, be evaporated to the consistence of a soft extract, and treated with alcohol, there remains only a viscid substance of a brown colour, almost without bitter taste, insoluble in alcohol, perfectly soluble in water, not rendering it turbid on cooling, and which, by spontaneous evaporation, is analysed into a saline mass, consisting of reddish brown crystals, hexahedral, rhomboidal, or square, and a mucilaginous matter which remains dissolved in the mother-water.

The precipitate which is deposited on the cooling of the concentrated infusion, when dried, has a red brown colour and an intensely bitter taste. It is readily soluble in alcohol, especially when heated. The tincture is decomposed by water, and yields crystals on spontaneous evaporation. It is sparingly and only partially soluble in cold water, more copiously and completely in boiling water, which, however, again becomes turbid on cooling. Its solution reddens tincture of turnsole, grows mouldy in a few days, does not precipitate tartar emetic, or solution of gelatine; is not visibly acted upon by acids, but with alkalies is coagulated into a thick whitish matter, becoming brown and somewhat hard by exposure to the air, softening with heat, and acquiring the ductility and silky gloss of turpentine.

The saline mass which crystallizes from the mother-water, on being purified by repeated solutions and crystallizations, is obtained in the form of white square or rhomboidal plates, often grouped, with almost no taste, soluble in about five waters at 50°, insoluble in alcohol, destructible by fire, not decomposed by ammonia, acetate of lead, or nitrate of silver, but by the fixed alkalies, and the oxalic and sulphuric acids, and by infusion

of tan, and of some varieties of cinchona. This salt M. Vauquelin discovered to consist of lime, and a new acid which crystallizes in plates, has a very acid taste, forms soluble and crystallizable combinations with the alkalies and earths, and does not precipitate the nitrates of silver, mercury, or lead. M. Vauquelin has given it the name of Kinic acid; but as this would lead us to suppose that it was obtained from Kino, it appears to me that it ought to be named the cinchonic acid, from the systematic name of the tree from whose bark it has been first obtained.

M. Vauquelin has also analysed the barks of the *cinchona pubescens* and *officinalis*, which he refers to the first class. In almost every respect the analysis agrees with that now detailed, except in the chemical properties of the deposit from the concentrated infusion, which in the present instance produces a copious precipitate in the infusion of nut-galls, as well in tartar emetic and nitrate of mercury. These deposits, he observes, differ from resins in being soluble in water, in acids and in alkalies, in acting as a dye, in decomposing metallic solutions, and in their watery solution becoming mouldy. He is inclined to consider them as a peculiar vegetable principle, not yet sufficiently examined.

Having thus detailed the latest experiments on this important subject, it may not be superfluous to notice the observations of preceding chemists, with a view of rendering the history of the analysis of cinchona more perfect. Neumann got from 7680 parts of common cinchona 640 alcoholic, and afterwards 300 watery extract; and inversely, 330 watery and 600 alcoholic; from which it might be inferred, that there were about 600 parts soluble in alcohol only, 300 in water only, and 30 or 40 in both; but the proportion of the last is certainly too small. Fourcroy extracted from 576 parts of red bark, 38 by water, and afterwards 24 by alcohol. Marabelli got from a pound of yellow bark, 464 grains of gum, 470 of extractive mucous matter, 292 of extractive resinous matter, and 125 of resin, besides saline matters, &c. Lewis observed that the decoction became turbid on cooling, and that the precipitate was soluble in alcohol. He also pointed out the deep green colour which decoctions of cinchona acquire from the addition of chalybeates. Dr. Irving afterwards found that recent decoctions gave a black colour, while those which had been kept some time gave a green.

I may add, that the tincture gives a black, while the cold infusion gives a green; and that, in all cases where an excess of the chalybeate is used, a green colour is produced. These effects have been ascribed to the presence of tannin; but they have little resemblance to the intensity and durability of the blue colour produced in infusions of gall-nuts, and other powerful astringents. They, however, show that the principle on which the colour depends is more soluble in alcohol and in boiling water, than in cold, and that it is very destructible. It was long believed that cinchona was a powerful astringent; but after Seguin's discovery of gelatine as a test of the principle of astringency, Dr. Maton found that cinchona contained very little tannin. In my experiments, solution of gelatine did not affect the cold infusion, but precipitated the tincture, diluted with water and filtered, slightly, and the filtered decoction copiously. The precipitate in the last case was filamentous, and exactly resembled that produced with gelatine by infusion of galls. Hence it appears that the tannin in cinchona is much less soluble in alcohol and in cold water, than in hot. Dr. Maton discovered that infusion of cinchona was precipitated by infusion of nut-galls. Seguin, who afterwards made the same observation, concluded from it that cinchona contained gelatine, but erroneously, as I soon after proved. Infusion of galls is precipitated copiously, not only by the filtered decoction of cinchona, but also by the infusion and tincture diluted and filtered; and as these phænomena are inconsistent with the properties of gelatine or starch, (the only other principles which, so far as I know, precipitate infusion of galls,) I conceived myself authorized to ascribe them to a vegetable principle, not hitherto examined, soluble in alcohol and in water, and called it cinchonin. Seguin supposed that it was the tannin of the infusion of galls which formed the precipitate in infusion of cinchona; but this is extremely doubtful: for, as I have mentioned in another work, a decoction of cinchona is precipitated both by gelatine and galls, and, when saturated by either of these re-agents, is still acted upon by the other; but an infusion of galls, after being saturated with gelatine, does not act on a decoction of cinchona. Now, if gelatine deprived the infusion of galls of no other principle but tannin, it would follow, that a decoction of cinchona contains both tannin and a principle precipitable by tannin, which can scarcely be the case; and indeed we do not at

present see any way of accounting for the facts, but by supposing that the galls and cinchona contain each of them tannin, and another principle, of a different nature in each, not precipitable by tannin, but by each other.

It is satisfactory to find that great master of analysis, Vauquelin, drawing nearly the same conclusion from his observations:— It would seem that it is to the tannin of the oak bark and galls that this principle (cinchonin) unites to form the precipitates observed in the infusions of these substances; but as this principle exists in some species which at the same time precipitate glue, it is doubtful that it really unites to the tannin of the oak bark, or that the principle in the other species of cinchona which precipitate glue, is actually tannin. But the one or the other of these suppositions must be correct, as the infusions of the two species precipitate each other. Dr. Irving obtained from cinchona a small portion of volatile oil, on which its aroma depends; and Fourcroy and other chemists have observed, that during the evaporation of an infusion or decoction of cinchona, exposed to the air, an insoluble pellicle is formed on the surface. Fabbroni observed, that cinchona loses its solubility by long exposure to the air, and even by being reduced to very fine powder; 100 parts of cinchona, when bruised, yielding from 12 to 16 of extract, and when finely powdered only 6 or 7; and that cinchona destroys the emetic property of tartrate of antimony, without losing its febrifuge virtues.

How little the analysis has hitherto accounted for the virtues of cinchona, is evident from three of the latest writers referring its virtues to totally different principles: Deschamps to the cinchonate of lime, two doses of which, of 36 grains each, according to him cure every intermittent; Westring to the tanning principle; and Seguin, on the contrary, to the principle which precipitates tannin.

MEDICAL USES.

On dead animal matter cinchona acts as an antiseptic, and on the living body it acts moreover as a stimulant, tonic, and antispasmodic. The discovery of its medical virtues was, in all probability, the result of accident. In fact, according to some, the Peruvians learned its use by observing certain animals affected with intermittents instinctively led to it; or, according to others, a Peruvian having an ague, was cured by accidentally drinking of a pool which, from some trees having fallen into it, tasted of

cinchona: and its use in gangrene is said to have originated from its curing one in an agueish patient. It has had various appellations. About the year 1640, from curing the lady of the Spanish viceroy, the Comitissa del Cinchon, it was called Cortex or Pulvis Comitissæ, Cinchona, &c.; from the interest which cardinal de Lugo and the Jesuit fathers took in its distribution, Cortex or Pulvis Cardinalis de Lugo, Jesuiticus, Patrum, &c.; from the place where it was originally found, Peruvian bark, or simply, from its preeminence, Bark.

On its first introduction into Europe it was reprobated by many eminent physicians, and at different periods, long after, it was considered as a dangerous remedy; but its character, in process of time, became universally established.

It was first introduced for the cure of intermittent fevers; and these, when it is properly exhibited, it rarely fails to cure. But there have been considerable differences of opinion with regard to the best mode of exhibition; some prefer giving it just before the fit, some during the fit, others immediately after it. Some, again, order repeated doses between the fits; and this mode of exhibition, although it may perhaps sometimes lead to the employment of more bark than is necessary, upon the whole appears preferable, from being best suited to most stomachs. The requisite quantity is very different in different cases; and in many vernal intermittents cinchona seems even hardly necessary.

It is now given from the very commencement of the disease, without previous evacuations, which are thought to retard the cure, and to induce, they say, abdominal inflammations, scirrhus, jaundice, hectic, dropsy, &c.; symptoms formerly attributed to the premature or immoderate use of the bark, but which are best obviated by its early and liberal use. It is to be continued not only till the paroxysms cease, but till the natural appetite, strength, and complexion return. It is then to be gradually left off, and repeated at proper intervals to secure against a relapse, to which there often seems to be a peculiar disposition, especially when the wind blows from the east. Although, however, evacuation rather counteracts the effects of cinchona in the cure of intermittents, yet, previous to its use, it is often adviseable to empty the alimentary canal, particularly the stomach; and on this account good effects are obtained from premising an emetic.

It is a medicine which seems not only suited to both formed and latent intermittents, but to that state of fibre on which all

periodical diseases seem to depend; as periodical pain, inflammation, hæmorrhagy, spasm, cough, loss of external sense, &c.

Cinchona is now used by some in all continued fevers; at the same time attention is paid to keep the bowels clear, and to promote, when necessary, the evacuation of redundant bile, always, however, so as to weaken the patient as little as possible.

In confluent small-pox it promotes languid eruption and suppuration, diminishes the fever, and prevents or corrects putrescence and gangrene.

Dr. Haygarth has lately extolled its use in acute rheumatism, from the very commencement, even without premising venesection.

In gangrenous sore throats, and indeed in every species of gangrene, it is much used, both externally and internally.

In contagious dysentery, after due evacuation, it has been used, taken internally and by injection, with and without opium.

In all those hæmorrhagies called passive, and likewise in other increased discharges, it is much used; and in certain undefined cases of hæmoptysis, some allege that it is remarkably effectual when joined with an absorbent.

It is used for obviating the disposition to nervous and convulsive diseases; and some have great confidence in it, joined with sulphuric acid, in cases of phthisis, scrofula, ill-conditioned ulcers, rickets, scurvy, and in states of convalescence. In these cases it is proper to conjoin it with a milk diet.

In dropsy, not depending on any particular local affection, it is often alternated or conjoined with diuretics or other evacuants, and by its early exhibition after the water is once drawn off, or even begins to be freely discharged, a fresh accumulation is prevented, and a radical cure obtained.

Peruvian bark may be exhibited,

1. In substance.

The best form of exhibiting this valuable remedy is in the state of a very fine powder, in doses of from ten grains to two drachms and upwards. Mutis and Zea say that two drachms of true genuine bark, in powder, are sufficient to prevent the excess of an intermittent, while, to produce the same effect, it requires the decoction of two ounces. Nay, even the residuum of an infusion is capable of curing agues, provided it be given in a larger dose than the entire powder. As it cannot be swallowed in the

form of a dry powder, it must either be diffused in some liquid, as water, wine, or milk, or mixed with some viscid substance, as currant jelly. Its taste, which is disagreeable to many people, is best avoided by taking it immediately after it is mixed with the vehicle. In this respect, therefore, it is better for the patients to mix it up themselves, than to receive it from the apothecary already made up, into a draught with some simple distilled water, or into an electuary with a syrup. A much more important objection to giving cinchona in substance is, that some stomachs will not bear it, from the oppression, and even vomiting, which in these cases it excites. We must endeavour to obviate this inconvenience by the addition of some aromatic, and by giving it in small doses more frequently repeated. If we are unable to succeed by these means, we must extract the most active constituents of the bark by means of some menstruum. It has therefore long been a pharmaceutical problem to discover which menstruum extracts the virtues of cinchona most completely. But it would be contrary to analogy to suppose that its constituent principles should subsist so intimately mixed as they must be in an organic product, without exerting upon each other some degree of chemical affinity, and forming combinations possessed of new properties. Accordingly we find, whether it arise from this cause, or merely from the state of aggregation, that neither water nor alcohol extracts these constituents from cinchona bark in the same quantity in which they are able to dissolve them separately, and that we must have recourse to direct experiment to determine the degree of action possessed by each menstruum upon it. With this view, many experiments have been made, and by very able chemists. But most of them were performed when the science of chemistry was but in its infancy; and even at this time that branch of it which relates to these substances is so little understood, that the results of the latest experiments are far from conclusive.

2. In infusion.

To those whose stomachs will not bear the powder, this is the best form of exhibiting cinchona bark. Water, at a given temperature, seems capable of dissolving only a certain quantity of its active constituents, and therefore we are not able to increase the strength of an infusion, either by employing a larger quantity of the bark, or allowing them to remain longer in contact. One

part of bark is sufficient to saturate sixteen of water in the course of an hour or two. To accelerate the action of the water, it is usual to pour it boiling hot upon the bark, to cover it up, and allow it to cool slowly. After standing a sufficient length of time, the infusion is decanted off for use. The propriety of this process may, however, be doubted; for if a cold infusion be boiled, or even gently heated, it acquires a deeper colour, and lets fall a resinous matter, in part insoluble in alcohol and in water. The infusion in water is, however, liable to one very great objection, that it cannot be kept even a very short time without being decomposed and spoiled. Therefore, in some instances we prepare the infusion with wine; and it fortunately happens that very often the use of the menstruum is as much indicated as that of the solvent. Cinchona also prevents wine from becoming acid, but in the course of a few days throws down its colouring matter, as nut-galls and charcoal do.

3. In tincture.

The great activity of the menstruum in this preparation prevents the bark from being given in sufficiently large doses to exert its peculiar virtues. It is, however, a powerful stimulant.

4. In decoction.

Water of the temperature of 212° is capable of dissolving a much larger proportion of the soluble parts of cinchona bark than water at 60°. But the solvent powers even of boiling water have their limits, and by protracting the decoction we do not increase its strength, but rather, by diminishing the quantity of the menstruum, we lessen the quantity of matter dissolved. Besides, at a boiling temperature some of the active constituents are dissipated, while others absorb oxygen rapidly from the atmosphere, and are converted into what seems to be an insoluble and inert resinous substance.

5. In extract.

In this preparation we expect to possess the virtues of cinchona bark in a very concentrated state. The principal objections to its use are its great expense, and the decomposition and destruction of the active constituents of the bark during the preparation, even when most carefully conducted. Not above half the weight of the dry extract is again soluble in water. It is convenient for the formation of pills and boluses, but we would

always prefer a fresh infusion or decoction to any mixture in which the extract is redissolved.

Externally, cinchona bark is used in substance, as an application to ill-conditioned, carious, or gangrenous ulcers.

In the form of clyster it may be given in substance, decoction, or extract. The powder is used as a tooth-powder for spongy and bleeding gums, and the decoction is an excellent astringent gargle or wash.

To increase the power of cinchona bark, or to direct its efficacy to a particular purpose, or to correct some inconveniencies occasionally produced by it, it is frequently combined with other remedies. When it produces vomiting, carbonic acid forms an useful addition; when it purges, opium; when it oppresses the stomach, aromatics; and when it induces costiveness, rhubarb.

The choice of bark is of great importance. It was introduced in the year 1649 into Europe by the Jesuits, who sold it at first for an immense price. This obtained it the name of Jesuits' bark. For a number of years the bark, which is rolled up into short thick quills, with a rough coat, and a bright cinnamon colour in the inside, which broke brittle, and was sound, had an aromatic flavour, a bitterish astringent taste, with a degree of aromatic warmth, was esteemed the best; though some people looked upon the large pieces of equal goodness.

RED PERUVIAN BARK TREE.

CINCHONA RUBRA.

During the time of the late war, in the year 1779, the Hussar frigate took a Spanish ship loaded principally with Peruvian bark, which was much larger, thicker, and of a deeper reddish colour than the bark in common use. Soon after it was brought to London it was tried in St. Bartholomew's hospital, and in other hospitals about town, and was said to be more efficacious than the quill bark. This put practitioners on examining into the history of the bark, and on trying experiments with it, and on making comparative trials of its effects with those of the bark in common use, on patients labouring under intermittent complaints.

In July 1782, Dr. William Saunders published an account of this red bark, in which he says that the small quill bark used in England is either the bark of young trees, or of the twigs or branches of the old ones; and that the large bark, called the red bark from the deep colour, is the bark of the trunk of the old trees: and he mentions a Mr. Arnot, who himself gathered the bark from the trees in Peru; and M. Condamine, who gives an

account of the tree in the Memoirs of the Academy of Sciences at Paris in the year 1738, who both say, that taking the bark from an old tree effectually kills it; but that most of the young trees which are barked, recover, and continue healthy; and that for these reasons the Spaniards now barked the younger trees for foreign markets, though they still imported into Spain some of the bark of the old trees, which they esteemed to be much more efficacious than what was got from the young. From these accounts Dr. Saunders concludes, that the large red bark, brought to London in the year 1779, was of the same kind as that used by Sydenham and Morton, as it answers to the description of the bark used in their time, which is given by Dale, and other writers on the Materia Medica, who were their cotemporaries. Dr. Saunders says that it is not only stronger and more resinous, but likewise more efficacious and certain in its effect, than the common bark, and had cured many agues after the other had failed. The yellow bark has, like the red bark, superior qualities to the common bark; but these, as we observed before, are more frequently adulterated than the other*.

The salt of bark, prepared by Godfrey and other chemists, merits more attention than it has hitherto received. Where the bark has been in other forms rejected by the stomach, as in some old very gouty habits, I have found that this as a tonic has succeeded; and where there has been ulcerated sore throat, and glandular swellings from scrofula, I have experienced great advantage by ordering it to be taken, by first moistening the finger and dipping it in the bark flakes, and then applying it to the tongue, and swallowing the saliva; and in a case of mortification, where powdered bark was rejected, I had the pleasure to find that this remained, and produced a most happy effect.

PREPARATIONS.

Infusion of Cinchona Bark. (Infusum Cinchonæ Officinalis. E.)

Take of Peruvian bark, in powder, one ounce;
——— water, one pound:
Macerate for twenty-four hours, and filter.

* All these barks, we are happy to inform the public, may be obtained genuine, and superlatively fine, of Mr. Adcock, chemist, Leadenhall-street, opposite the India-house, a gentleman who has made it his study to supply the faculty with the very best drugs of every kind.

(Infusum Cinchonæ sine Calore. D.)

Take of Peruvian bark, in coarse powder, one ounce;
——— water, twelve ounces, by measure:
Triturate the bark with a little of the water, and add the remainder during the trituration. Macerate for twenty-four hours, and decant the pure liquor.

This is a very elegant form of exhibiting the active principles of cinchona bark, and that in which it will sit lightest on weak and delicate stomachs. The trituration directed by the Dublin college will promote the solution. The residuum of the cold infusion may be afterwards employed in making other preparations, especially the extract, for its virtues are by no means exhausted. But it must never be dried and sold, or exhibited in substance, for that would be a culpable fraud.

Decoction of Cinchona Bark. (Decoctum Cinchonæ Officinalis. E.)

Take of cinchona bark, in powder, one ounce;
——— water, one pound and a half:
Boil for ten minutes in a covered vessel, and strain the liquor while hot.

Decoction of Peruvian Bark. (Decoctum Corticis Peruviani. L.)

Take of Peruvian bark, powdered, one ounce;
——— distilled water, one pint and three ounces:
Boil for ten minutes in a covered vessel, and strain the liquor while hot.

Decoction of Cinchona Bark. (Decoctum Corticis Cinchonæ. D)

Take of Peruvian bark, in coarse powder, one ounce;
——— water, one pint:
Boil for ten minutes in a vessel almost covered, and strain the liquor, while hot, through linen.

Cinchona bark readily yields its active principles to the action of boiling water, and in greater quantity than cold water is capable of retaining dissolved; therefore when a saturated decoction cools it becomes turbid, and there is always a deposition of a yellowish or reddish powder, while the supernatant liquor is reduced to the strength of a saturated cold infusion. Decoction,

therefore, presents us with an easy means of obtaining immediately an active preparation of cinchona bark, and with one of greater strength, than a cold or even a warm infusion, provided it be drunk while tepid, and before it forms any deposition, or if the precipitate be diffused by agitation after it is formed. As the precipitate contains no woody fibre, or other inert matter, it is extremely probable, that, in very small doses, it would prove, if dried, a very powerful preparation of cinchona bark.

Formerly it was supposed that the strength of a decoction of cinchona bark, and similar substances, was increased by continuing the boiling for a great length of time; but this is now known to be a mistake; because water, at different temperatures, is capable of dissolving only a determinate proportion of its active principles; and therefore, as soon as it is saturated, any further decoction is unnecessary. But moreover, these principles, when dissolved in water, are liable to be decomposed, and become inert, by the absorption of atmospheric oxygen; and this decomposition is increased by increase of temperature; and as boiling constantly presents new surfaces to the action of the air, it is evidently hurtful when protracted longer than what is just necessary to saturate the water. Ten minutes is supposed by the colleges to be sufficient for that purpose.

Tincture of Cinchona, or Peruvian Bark. (Tinctura Cinchonæ Officinalis. E. Tinctura Cinchonæ. D. Tinctura Corticis Peruviani. L.)

Take of cinchona bark, in powder, four ounces, (six ounces, L.);
——— diluted alcohol, two pounds and a half, (two pints, L. D.):
Digest for seven days, and strain through paper, E.

This tincture is certainly impregnated with the virtues of cinchona, but not to such a degree that it can be given in sufficient doses to act as cinchona, without exhibiting more alcohol than what is proper to be given as a medicine. Indeed, we are afraid that this and other bitter and tonic tinctures, as they are called, are with some only an apology for dram-drinking, and that the most apparent effects they produce are those of a slight degree of tonic power with much of the stimulus of spirit.

Compound Tincture of Peruvian Bark. (Tinctura Cinchonæ, sive Corticis Peruviani composita. L. D.)

Take of Peruvian bark, powdered, two ounces;
——— exterior peel of Seville oranges, dried, one ounce and a half (half an ounce, D.);
——— Virginian snake-root, bruised, three drachms;
——— saffron, one drachm;
——— cochineal, powdered, two scruples;
——— proof spirit, twenty ounces:
Digest for fourteen days, and strain.

This is said to be the same with the celebrated Huxham's tincture of bark.

As a corroborant and stomachic it is given in doses of two or three drachms, but when employed for the cure of intermittents it must be taken to a greater extent.

Extract of Cinchona. (Extractum Cinchonæ Officinalis. E.)

Take of cinchona bark, in powder, one pound;
——— alcohol, four pounds:
Digest for four days, and pour off the tincture. Boil the residuum in five pounds of distilled water for fifteen minutes, and filter the decoction, boiling hot, through linen. Repeat this decoction and filtration, with the same quantity of distilled water, and reduce the liquor, by evaporation, to the consistence of thin honey. Draw off the alcohol from the tincture, by distillation, until it also become thick; then mix the liquors thus inspissated, and evaporate them in a bath of boiling water, saturated with muriate of soda, to a proper consistency.

Extract of Peruvian Bark with the Resin. (Extractum Corticis Peruviani cum Resina. L.)

Take of Peruvian bark, reduced to coarse powder, one pound;
——— rectified spirit of wine, four pints:
Digest it for four days, and pour off the tincture; boil the residuum in ten pints of distilled water to two; then strain the tincture and decoction separately, evaporating the water from the decoction, and distilling off the spirit from the tincture, until each begins to be thickened. Lastly, mix the resinous with the aqueous extract, and make the mass fit for forming into pills.

There are two kinds of extracts made, the hard and soft.

The chapter on Extracts and Resins in the London Pharmacopœia is concluded with the two following general directions:

1. All the extracts, during the time of inspissation, must be gently agitated.

2. On all the softer watery extracts a small quantity of spirit of wine must be sprinkled.

The Dublin college say,—

All extracts, when they begin to get thick, ought to be frequently stirred with a clean iron spatula; and they may be reduced to a proper thickness by means of a stove, heated for that purpose. They must be kept as much as possible excluded from the action of the air; and the softer extracts are to be sprinkled with rectified spirit of wine.

All these extracts are supposed to contain the virtues of the substances from which they are prepared, in a very pure and concentrated form; but this supposition is probably in several instances erroneous; and the directions for preparing them are frequently injudicious and unœconomical.

As the changes which opium and aloes undergo by solution and subsequent evaporation, have never been ascertained by careful and satisfactory experiments, well-selected pieces of these substances are to be preferred to the preparations in which they are supposed to be purified. As a further proof of the superiority of good opium over all its preparations, I may also remark, that the latter, however well prepared, soon become mouldy, the former never.

Cinchona bark is a medicine of very great importance; but, unfortunately, the proportion of woody fibres, or inert matter, which enter into its composition is so great, that weak stomachs cannot bear it when given in quantity sufficient to produce any very powerful effects. On this account, the preparation of an extract, which may contain its active principles in a concentrated form, is a desirable object. On this subject there is still much room for experiment. The London college, in its directions, certainly errs in two important particulars: in the first place, in desiring the decoction to be continued until the greatest part of the menstruum is evaporated; and, in the second place, in separating, by filtration, the powder which separates from the decoction after it has cooled. The first error probably originated in the old idea, that, by continuing the boiling for a great length

of time, more of the bark would be dissolved; but it is now understood that water is incapable of dissolving more than a certain quantity of the active principles of cinchona; and that, after the water has become saturated, by continuing the decoction we diminish the quantity of the menstruum, and therefore also diminish the quantity of bark dissolved. It is not easy to account for the second error; for, according to the old idea, that the powder which separated, on cooling, from a saturated decoction of cinchona, was a resinous substance, it surely ought not to have been rejected from what were supposed to be resinous extracts. This precipitate is now known to be caused by the much greater solubility of its active principles in boiling than in cold water, so that the precipitate is not different from what remains in solution. Accordingly, I have found by experiment that cinchona gave at least one half more extract when the decoction was conducted according to the directions of the Edinburgh college.

The real advantage of so expensive an agent as alcohol in preparing any of these extracts, has not been demonstrated; and, if I be not misinformed, it is seldom employed by the apothecaries in preparing even what are called the resinous extracts.

Prescriptions, with Remarks.

The best forms of prescription are:

℞. 1. Take of bark, in powder, ounce $1\frac{1}{2}$;

Divide into twelve portions, of which take one in some milk every two hours in the interval of the ague fit; when this comes on take thirty drops of vitriolic ether and fifteen drops of laudanum in a decoction of liquorice, after which frequently take a cupful of warm decoction of liquorice until the sweating is over, when resume again the bark as before.

℞. 2. Take of bark, in powder, - scruples 2,
——— snake-root - - - scruple 1:

Make into a powder, to be taken every three hours in some porter. This is given in the advanced stage of putrid fever; some food of the farinaceous kind (not animal) is to be taken an hour after. Sometimes to the powder mixed with porter, a dessert-spoonful of yeast is added, producing a wonderful and unexpected result in cases the most forlorn.

℞. 3. Take of bark, in powder - - - - - scruples 2
—— compound powder of chalk with opium, grains 10:

Form a powder, to be taken three times or four times a day. This is excellent in obstinate diarrhœa, first evacuating with rhubarb and colombo, equal parts, three grains every four hours.

℞. 4. Take of bark, in powder, - - scruples 2,
——— cascarilla, in powder, - grains 10:

Form a powder, to be taken every six hours in a glass of red wine. In low nervous fevers.

℞. 5. Take of decoction of bark,
——— lime water, equal parts, a pint:

A full wine-glass is to be taken four times a day. This is found frequently to remove obstinate scabies, commonly called violent scorbutic eruption.

Bark is usefully joined with calcined magnesia.

Two drachms of Peruvian bark in powder, and half a drachm of calcined magnesia, were rubbed together in a mortar, with four ounces of distilled water, for the space of ten or fifteen minutes; the water being gradually added, so as to reduce the materials in the first instance to the state of a paste. The infusion, when passed through filtering paper, is found to be possessed of the following remarkable properties:

1st. An exceedingly deep red colour, superior to the infusion of common bark in lime water.

2d. It is more bitter and astringent to the taste even than an infusion of red bark.

3d. It produces a very deep black colour, with a copious precipitation, upon the addition of a solution of sal martis; while a similar addition to a common infusion of bark occasions a moderate discoloration and small precipitation only.

4th. It remains beautifully transparent three or four days, and is so strongly antiseptic, that at the end of a week, in summer, it had scarcely made any advances towards fermentation; while an infusion of bark with simple water will ferment in two days.

5th. It exceeds in specific gravity the infusion of bark in lime water, in the same, or rather in a greater proportion, than that exceeds the simple infusion.

In order to determine more particularly the nature of the infusion prepared by the last experiment, several additions were made to different portions of it. Being mixed in equal quantities with water impregnated with fixed air, no other effect was produced than that of simple dilution. A small quantity of the acid of sugar, however, being added to some of the infusion, immediately discharged the red colour, and caused a whitish precipitation: hence it is obvious that magnesia not only increases the activity of water upon bark, but is in fact dissolved itself in the water in a very small proportion.

If calcined magnesia be added to an infusion of bark, prepared in the common way with simple water, it occasions no change in its colour or properties; from which we may conclude that when bark and magnesia are rubbed together with water, in the manner before mentioned, the magnesia either enables the water to extract something from the bark, which it could not have done alone, or, what is more probable, by uniting chemically, they form a compound more active and soluble in water than pure bark.

With a view of ascertaining how far the colouring matter of an infusion of bark with magnesia corresponds with the astringency of it, the following experiment was made:—The clear and colourless liquor was carefully poured off from the precipitate, which the acid of sugar had occasioned when added to the infusion of bark and magnesia, and being mixed with a proper quantity of the chalybeate solution changed to a green colour only; from which circumstance it is probable that there is a close connection between the colouring matter and astringency, for the deeper the red colour of the infusion, the more complete always is the black which the chalybeate produces.

Magnesia differs remarkably from lime in its action upon bark; for, whether in a small or large quantity, it promotes the solution, though more completely as the proportion is greater. By the addition of half a drachm, or a drachm at the utmost, however, to two drachms of bark and four ounces of water, the full effects are obtained, and an additional quantity of the magnesia would only be wasted.

I have mentioned that the magnesia, with which the experiments hitherto related, was calcined. I may add, that it was prepared by my friend Mr. Babington with the greatest care, so as to have lost more than half its weight by calcination. It was next an object to try the action of common magnesia upon bark, in order to determine how far the presence or absence of fixed air could assist in the explanation of the effects which have been enumerated.

One drachm of common magnesia (which is about equal to half a drachm of the calcined) was rubbed in a mortar fifteen

minutes, with two drachms of bark and four ounces of pure water, in a similar manner to the infusion with calcined magnesia, and, being filtered, was subjected to all the trials which were made with that infusion. Some little difference was perceived in favour of the infusion with calcined magnesia, but the other exhibited similar properties in every respect.

If, indeed, two infusions be prepared, the one with half a drachm of calcined, the other with the same quantity of common magnesia, the former will appear much stronger, the proportion of real magnesia being double; but when allowance is made for the presence of fixed air in common magnesia, all the effects may be obtained from it nearly, if not in an equal degree, with the calcined.

Some experiments were next instituted with magnesia and red bark, and conducted according to the method fully described in treating of the action of this earthy substance upon common Peruvian bark, but with a very different result. It is remarkable, that in the trials with red bark no effects could be perceived either from common or calcined magnesia. The colour of an infusion prepared in this way (*i. e.* by rubbing two drachms of red bark and half a drachm of magnesia together, for fifteen minutes, with four ounces of water added in a gradual manner) is not deeper than an infusion in simple water. If, however, the magnesia and red bark be kept infused a few hours after being well rubbed, the liquor at length acquires a pretty deep red colour, but is not more bitter to the taste than the plain infusion of red bark in water.

This difference in the action of magnesia upon the common and red bark, seems to point out a difference in the nature of their constituent parts*, which the other experiments were not capable of detecting. As all the substances which had acted upon quilled bark appeared to exert a more powerful action on the red, there was every reason to expect that the effects in the present instance should be similar. I confess myself rather at a loss for a satisfactory explanation of the difference, unless we suppose that the soluble parts of the red bark are already in such a state of activity as not to admit of any improvement from magnesia.

* This is a valuable fact in order to detect the adulteration of this bark by colouring ingredients sometimes practised.

Many practitioners are in the habit of employing bark and lime water as a tonic in general:—Might not the calcined magnesia with bark be used as a substitute?

I have been long convinced, indeed, of the efficacy of the infusion with lime water, and am acquainted with several practitioners of experience who have frequently recourse to it with the best effects; and with regard to the preparation with magnesia, its sensible qualities are so highly in its favour, that Dr. Saunders has been induced to administer it frequently, both in the hospital and in private practice; and although very extensive trials would be necessary in order to form a decided conclusion, those which have been hitherto made have been far from proving unfavourable to this remedy. "I have," says Dr. Skeete, "communicated my experiments and observations to several practitioners of my acquaintance, and after a trial of the infusion, both in public and private business, I have received as satisfactory accounts from them as the nature of the subject will permit." In short, any person who will take the trouble of preparing an infusion of bark with magnesia carefully, in the proportions and under the circumstances fully explained in the foregoing experiments, will soon be convinced, from its taste and appearance, that it must prove far more efficacious than the common infusion. The rich red colour, its transparency for three or four days, and the length of time which it remains sound, without the addition of any of the spirituous waters, are all qualities which should operate in obtaining it an extensive application to the purposes of medicine. It appears to me to be an excellent substitute for the decoctions and infusions of the red bark, and, if this be really the case, it is no small acquisition.

Notwithstanding the remarkable strength of the infusion with lime water, that with magnesia is preferable on several accounts; for, independent of its original superior strength, as far as experiments could direct us, it is less disagreeable to the taste, and keeps a much longer time without precipitation. We are not to suppose, however, that because the preparation of bark with lime water becomes turbid in a day or two, it loses much of its strength. It does not appear at such a time to be in a state of fermentation, and still retains its strong bitter taste.

But besides employing magnesia in infusion with bark, I would propose that they should be given more frequently in sub-

stance than has hitherto been the practice. Some physicians have occasionally prescribed powdered bark and magnesia, with a few grains of the aromatic confection, but with no other expectation from the magnesia than that of obviating costiveness. I leave it to be determined by my readers, whether there are not good grounds to expect that the bark would be rendered more efficacious likewise by such a mode of exhibition.

℞. 6. Take of decoction of bark - - - ounces 6,
——— compound tincture of bark, ounce 1,
——— bark in powder - - - drachm 1,
——— calcined magnesia - - - drachm 1:
To form a mixture. Two table-spoonfuls to be given three times a day as a very powerful tonic.

℞. 7. Take of the soft extract of bark - grains 15,
——— purified alum in powder - grains 5,
——— tincture of opium - - - drops 6:
Make into a bolus, to be taken three times a day in half a glass of red wine. Excellent to check diarrhœas.

℞. 8. Take of the decoction of bark - drachms 12,
——— tincture of bark - - drachm 1,
——— syrup of Tolu - - - drachm ½,
——— diluted vitriolic acid - drops 8:
Make into a draught, to be taken three times a day as a tonic in cases of debility.

℞. 9. Take of bark, in powder - ounce 1,
——— syrup of ginger - as much as is sufficient:
To make an electuary. The size of a nutmeg to be taken, covered with moistened wafer-paper, three or four times a day for an ague.

℞. 10. Take of bark, in powder - drachm ½,
——— syrup of orange-peel, or
——— syrup of ginger, as much as is sufficient:
Make a bolus, to be taken every two hours along with a glass of port wine, for an ague; or at twelve at noon, and seven in the evening, to prevent a relapse.

℞. 11. Take of soft extract of bark - - drachm ½,
——— essential oil of cinnamon - drops 2,
——— tincture of opium - - - drops 4:
Make a bolus, to be taken every six hours. The opium is added to hinder the bark from running off by the bowels.

℞. 12. Take of bark, in powder - - - ounces 2,

Take of cammomile, in powder - ounces 1½,
——— rust of iron - - - - scruples 1,
——— simple syrup - - - - as much as is sufficient:
To form an electuary, of which the size of a nutmeg is to be taken covered with wafer-paper four times a day. The addition of the iron renders it both tonic and stimulant, and produces cures in agues where the bark sometimes fails.

℞. 13. Take of soft extract of bark, drachms 2:
Make into twenty-four pills: take three or four three times a day. A mild tonic.

℞. 14. Take of soft extract of bark - drachm 1½,
——— calcined zinc - - - grains 6,
——— syrup of ginger - as much as is sufficient:
Form twenty pills, of which take three three times a day. The zinc adds greatly to the tonic powers of the bark.

℞. 15. Take of soft extract of bark - drachm 1½,
——— opium, in powder - - grains 10,
——— balsam of Peru - - drops 6:
Make into twenty-four pills, of which take three three times a day. Given in cancers, and to allay irritation without weakening the system.

℞. 16. Take of soft extract of bark - drachms 2,
——— colombo,
——— rust of iron, equal parts - drachm 1,
——— simple syrup - - - - as much as is sufficient:
Make into fifty pills; take two, and gradually increase to five, three times a day. This is an excellent tonic.

℞. 17. Take of decoction of bark - - ounces 6,
——— diluted vitriolic acid - scruple 1,
——— honey of roses - - - ounce 1:
Make into a gargle; to be used, mixed with port wine, frequently during the day, in putrid sore throats.

℞. 18. Take of decoction of bark - - ounces 7,
——— muriated quicksilver - grains 2:
Make into a gargle, to be taken every two hours. This is excellent in a common sore throat, before or after it has broken. By adding to this formula two drachms of bark in powder, and an ounce of the compound tincture of bark, I have found a decomposition to take place, as the change of colour of the liquid

shows, owing to the muriated mercury; and in this form I have ordered a dessert-spoonful to be taken, drinking after it a cup of gruel, at twelve at noon, seven in the evening, and bed-time, and removed thereby the most obstinate cases of scabby eruptions, and cases of venereal affection, without hurting the constitution, or producing salivation, the common pernicious effects of the usual application of mercury.

℞. 19. Take of decoction of bark ounces 7,
——— tincture of myrrh - drachms 2,
——— purified nitre - - drachms 3:

Make into a gargle. This is a sovereign method to disperse a tumified gland, or common sore throat. By taking upon such occasions a small lump of purified nitre, and putting it into the mouth, and letting it dissolve there, and then removing it, and applying it again in a few seconds, swallowing the saliva, I have always for many years prevented a sore throat from forming; and sometimes I have added to this process the taking a tea-spoonful of brandy on sugar, letting the saliva pass on the side where the gland of the neck has become enlarged from cold or infection. A flannel should be put round the throat, or a stocking.

WOODY NIGHTSHADE.

SOLANUM DULCAMARA.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* rotate: *Anthers* nearly coalesced, opening at their apices by two pores: *Berry* two-celled.

Spec. Char. *Stem* unarmed, shrubby, winding: Superior *leaves* hastate *Racemes* cymose.

DESCRIPTION.

This plant rises to four, five, or six feet in height. Branches climbing. Leaves long, oval, pointed, on the top hastate, or halbert-shaped. Flowers in loose clusters, always turning against the leaves, and avoiding the sun. Corolla composed of one petal, wheel-shaped, divided at the border into five pointed segments, which are bent back, and of a purple colour. Prominences like dots surrounding the rim of the corolla form the nectary. The yellow anthers make a beautiful contrast to the corolla. These flowers become bilocular berries, which acquire

a bright red and inviting appearance somewhat resembling our currant, and of a bitter sweet taste.

HISTORY.

This climbing shrub grows common in moist hedges and on dunghills, has woody brittle stalks, and flowers in June and July. The twigs should be gathered early in spring. The taste, as the name of the plant expresses, is both bitter and sweet; the bitterness being first perceived, and the sweetness afterwards; and when fresh they have a nauseous smell.

MEDICAL USE.

The dulcamara was formerly much esteemed as a powerful medicine. It is in general said to increase all the secretions and excretions, to excite the heart and arteries, and, in large doses, to produce nausea, vomiting, and convulsions; but its effects seem to differ according to the nature of the soil on which it grows, being most efficacious in warm climates, and on dry soils. It has been recommended in cutaneous affections, in rheumatic and cathartic swellings, in ill-conditioned ulcers, scrophula, indurations from milk, leucorrhœa, jaundice, and obstructed menstruation. It has principally been employed under the form of the watery infusion of a drachm taken daily, and gradually increased to two ounces. Six ounces may be boiled in six pounds of water to four, and four or five ounces given for a dose in as much milk. In the form of extract, from five to ten grains may be given for a dose.

The expressed juice of the dulcamara is useful in inflammations and cancers. "I have seen," says Haller, "a cancerous ulcer of the breast soften by the application of the juice upon the wound, and the leaves applied over the whole breast, and cicatrise afterwards perfectly, and without a return of the complaint, in a lady 70 years old. The ulcer was in the commencement, but half an inch in depth.

"Boerhaave," adds Haller, "my illustrious master, set a great value on this plant in pleurisy and pituitous peripneumony, ordering his patients to drink an infusion of the twigs." It must be here observed, that this remedy should be commenced in a small dose, for in a large one dangerous symptoms are frequently excited. This caution is given by Murray, who says, "Largior dulcamaræ usus initio et antequam ventriculus illi assueverit, nauseam et vomitum excitat, quin convulsiones et deliria, et, notante cl. Govan, protractam paralysin linguæ."—"A large dose of the dulcamara being given before the stomach has been accustomed to its effects, produces nausea and vomiting, also convulsions and delirium, and, as Govan observes, a protracted paralysis of the tongue." The preparation should be as follows, according to Razou:

Take of the fresh twigs of dulcamara - drachm ½,
——— clear water - - - - - - - ounces 16:

Boil to eight ounces. The dose is three or four drachms, in some milk, to be taken every four hours. An emetic and cathartic should be first premised. This obviates the necessity for bleeding, and the recovery by this mode of treatment is more rapid, and the patient is sooner able to return to his ordinary occupation. It should be given only in robust habits.

Bergius recommends a decoction of its stalks, made by boiling a drachm of them from a pint to half a pint of water, to be mixed with milk, and to be taken for the cure of herpes and land scurvy, and other cutaneous diseases.

Tragus considers this as a sovereign remedy for jaundice, even in the last stage.

Haller mentions that it is an admirable remedy for inward bruises, and relates a case of a man who was attacked by a robber, and nearly beaten to death, who took a decoction of the stalks, and at the end of two days was cured of the most violent inward bruises, accompanied with extreme agony.

The stalks are more powerful than the leaves, and a decoction of the woody part acts as a purgative, and is recommended by Lobel as a cure of the dropsy.

The berries both purge and vomit, and are extremely dangerous for children, for thirty of them being given to a dog, killed it in less than three hours.

GUINEA PEPPER.

CAPSICUM ANNUUM.

Class V. Pentandria. *Order* I. Monogynia.
ESSENT. GEN. CHAR. *Corolla* rotate: *Berry* without juice.
SPEC. CHAR. *Stem* herbaceous: *Pedunele* solitary.

DESCRIPTION.

THIS plant rises four or five feet in height. The leaves are egg-shaped, ending acute. The flowers are placed on footstalks, which bear a single flower, usually proceeding from the axilla of the leaf. The calyx consists of one leaf cut into five segments. The corolla is monopetalous, rotate, divided also into five segments. To the flower succeeds a soft fruit, membranous, divided into two or more cells, polished, shining, in the beginning green, then becoming a bright orange, containing several flattish kidney-shaped seeds.

HISTORY.

This is an annual plant, a native of South America, cultivated in large quantities in our West India islands; and even frequently in our stoves, for the beauty of its pods.

The pods of this species are long, pointed, and pendulous, at first of a green colour, and when ripe of a bright orange red. They are filled with a dry loose pulp, and contain many small, flat, kidney-shaped seeds. The taste of capsicum is extremely pungent and acrimonious, setting the mouth as it were on fire.

The principle on which its pungency depends, I find, is soluble in water and in alcohol, is not volatile, reddens infusions of turnsole, and is precipitated by infusion of galls, nitrate of mercury, muriate of mercury, nitrate of silver, sulphate of copper, sulphate of zinc, red sulphate of iron (but the precipitate is neither blue nor green), ammonia, carbonate of potass, and alum, but not by sulphuric, nitric, or muriatic acid, or silicized potass.

Cayenne pepper is an indiscriminate mixture of the powder of the dried pods of many species of capsicum, but especially of the capsicum frutescens or bird pepper, which is the hottest of all. Cayenne pepper, as it comes to us in powder from the West Indies, changes infusion of turnsole to a beautiful green, probably owing to the muriate of soda, which is always added to it, and to red oxide of lead, with which it is said to be mixed.

MEDICAL USE.

These peppers have been chiefly used as a condiment. They prevent flatulence from vegetable food, and have a warm and kindly effect in the stomach, possessing all the virtues of the oriental spices, without, according to Dr. Wright, producing those complaints of the head which the latter are apt to occasion. An abuse of them, however, is supposed to occasion visceral obstructions, especially of the liver. In the practice of medicine they constitute one of the simplest and strongest stimulants which can be introduced into the stomach, their action not being followed by any narcotic effects. Dr. Wright says that in dropsical and other complaints, where chalybeates are indicated, a minute portion of powdered capsicum forms an excellent addition; and he recommends its use in lethargic affections. It has also been successfully employed as a gargle in cynanche maligna, when it has resisted the use of cinchona, wine, and the other remedies commonly employed. In tropical fevers, coma and delirium are common attendants; and in such cases cataplasms of capsicum have a speedy and happy effect. They redden the parts, but seldom blister, unless when kept on

too long. In ophthalmia from relaxation, the diluted juice of capsicum is a sovereign remedy. Dr. Adair gave six or eight grains for a dose, made into pills, or prepared a tincture, by digesting half an ounce of pepper in a pound of alcohol, the dose of which was one or two drachms diluted with water. As an aromatic of the most acrid and stimulant kind, it certainly may be found efficacious in some paralytic and gouty cases, or to promote excitement where the bodily organs are languid and torpid. Bergius gave the seeds of capsicum, with great success, in inveterate intermittents. The pungency of the taste in the mouth is removed by rinsing the mouth with vinegar and water.

SMALLER CENTAURY.

CHIRONIA CENTAURIUM.

GENTIANA CENTAURIUM.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* rotate: *Pistil* declined: *Stamina* sitting upon the tube of the corolla: *Anthers* at length, spiral: *Pericarp* two-celled.

Spec. Char. *Corolla* funnel-shaped, five-cleft: *Stem* dichotomous: *Pistil* simple.

DESCRIPTION.

It rises from six to ten inches in height. The stalk is erect. The leaves are opposite, sessile, oblong, blunt. Flowers terminal, in bunches, of a pink or red colour. The calyx is cut into five erect small teeth. The corolla is funnel-shaped, the tube is cylindrical, and the border is divided into five egg-shaped segments.

HISTORY.

This plant is annual, and grows wild in many parts of England on barren pastures. It flowers between the months of June and August.

Neumann got from 480 parts 210 alcoholic, and 140 watery extract; and inversely, 320 watery, and 40 alcoholic.

After the example of Dr. Woodville, I have separated this plant from the gentian tribe and placed it as a chironia.

MEDICAL USES.

Centaury is justly esteemed as one of the most efficacious bitters indigenous to this island. It is often substituted for gentian, which it much resembles. It is milder than the wormwood, and holy thistle. It was formerly much used as a stomachic bitter both in substance and infusion, and for the cure of intermittent fevers. It is recommended for worms, and, like chamomile, is made into tea for assisting the operation of emetics. It answers the purpose of any of the bitters, and is often taken to create an appetite; but the long continued use of any bitter impairs the coats of the stomach, and produces an incurable debility of that organ.

BUCKTHORN.

RHAMNUS CATHARTICUS.

SPINA CERVINA. P. L.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* tubular: *Scales* arming the stamina: *Corolla* none: a *Berry*.

Spec. Char. *Spines* terminal: *Calyx* four-cleft, diœcious: *Leaves* ovate: *Stem* erect.

DESCRIPTION.

This is a prickly bush, or low tree, common in hedges; with oval, pointed, sawed leaves. The flowers are male and female upon different plants, small, and in clusters upon simple pedunclcs. The calyx is funnel-shaped, divided into four spreading segments. The stamina are usually four only. It produces a round black berry containing four seeds.

HISTORY.

This tree, or bush, is common in hedges: it flowers in May and June, and ripens its fruit in September or the beginning of October. In our markets, the fruit of some other trees, as the blackberry-bearing alder, and the dogberry tree, have of late been frequently mixed with, or substituted for, those of buckthorn. This abuse may be discovered by opening the berries; those of buckthorn have almost always four seeds, the berries of the alder two, and those of the dogberry only one. Buckthorn berries, bruised on white paper, stain it of a green colour, which the others do not. Those who sell the juice to the apothecaries are said to mix it with a large proportion of water.

MEDICAL USES.

Buckthorn berries have a faint disagreeable smell, and a nauseous bitter taste. They have long been in considerable esteem as cathartics; and celebrated in dropsies, rheumatisms, and even in the gout; though in these cases they have no advantage over other purgatives, but are more offensive, and operate more severely, than many which the shops are furnished with. They generally occasion gripes, sickness, dry the mouth and throat, and leave a thirst of long duration. The dose is about twenty of the fresh berries in substance, and twice or thrice this number in decoction; an ounce of the expressed juice, or a drachm of the dried berries.

PREPARATIONS.

The only officinal preparation ordered by the colleges is a syrup, simple as directed by the Edinburgh college, and properly corrected by ginger and pimento by the London.

Syrup of Buckthorn. (Syrupus Rhamni Cathartici. E.)

Take of the juice of ripe buckthorn berries, depurated, two parts;
——— double refined sugar, one part:
Boil them so as to form a syrup.

Syrup of Buckthorn. (Syrupus Spinæ Cervinæ. L.)

Take of the fresh juice of ripe buckthorn berries, one gallon;
——— ginger, bruised, one ounce;
——— pimento, powdered, one ounce and a half;
——— double refined sugar, seven pounds:

Set aside the juice for three days, that the fæces may subside; and then strain it. Macerate the ginger and pimento in a pint of the strained juice for four hours, and filter. Boil away the rest of the juice to three pints; then add that part of the juice in which the ginger and pimento have been macerated, and form a syrup of it with the sugar.

Both these preparations, in doses of three or four spoonfuls, operate as brisk cathartics. The principal inconveniencies attending them are their being very unpleasant, and their occasioning a thirst and dryness of the mouth and fauces, and sometimes violent gripings; these effects may be prevented by drinking liberally of water-gruel, or other warm liquids, during the operation.

It is seldom employed alone, but to give power to other purgatives, except in dropsies.

The juice dried produces for the painter their *sap green*, a very fine dark green, but not very durable.

add fourteen ounces of sifted sugar; boil quick, skim, and reduce to a good thickness, which may be known by putting a little into a saucer and setting it in cold water.

Jelly is contained in the juices of several acid fruits, particularly currants. It is deposited from them in the form of a soft tremulous mass, almost colourless, and agreeable to the taste. It is scarcely soluble in cold water, but very soluble in hot water; and when the solution cools, it again assumes a gelatinous state. With sugar its combination is well known. By long boiling it loses this property of congealing. When dried, it becomes transparent, hard, and brittle, resembling gum. It combines with the alkalies, and is converted by the nitric acid into oxalic acid.

In the dry state of the fauces and tongue it is excellent, and to give children after medicine, or to mix some powders with it, especially calomel.

BLACK CURRANT.

RIBES NIGRUM.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Petals* five; *Stamens* inserted into the calyx: *Style* two-cleft: *Berry* many-seeded beneath.

Spec. Char. *Stem* unarmed: *Racemes* hairy: *Flowers* oblong.

DESCRIPTION.

This shrub rises from five to six feet in height. The leaves are commonly divided into three lobes, irregularly serrated. On the under side are small glands, which secrete a peculiarly smelling fluid. The flowers are on pendant bunches, upon slender footstalks, placed alternate on the raceme. The calyx is cut into five segments. The corolla consists of five roundish petals. The berries are black.

MEDICAL VIRTUES.

It is a wholesome fruit, and a gentle aperient. The leaf applied to a gouty limb is said greatly to assuage pain and inflammation of the part. The inner bark of this, and also of the red currant and gooseberry, made into a decoction, is a popular

remedy in jaundice, and, with some medical men, for dropsy. But the chief use is from the following

PREPARATIONS.

Black Currant Wine.

The currants should be gathered on a dry day, when quite ripe; strip them, put them into a large pan, bruise them with a wooden pestle, and let them stand twenty-four hours to ferment: then rub it through a hair sieve, but do not let the hand touch the liquor. To every gallon of this liquor stir in two pounds and a half of white sugar, and put it into a vessel. To every six gallons add one quart of brandy, and let it stand six weeks. If fine, bottle it; if not, draw it off clear into another vessel, or large bottles; and, in a fortnight, bottle it up for use.

Another Way.—Take four gallons of currants, not too ripe, strip them into an earthen stein with a cover to it; then take two gallons and a half of water, and five pounds and a half of sugar; boil the sugar and water together, and well skim it; then pour it boiling on the currants, and let it stand forty-eight hours; afterwards strain it through a flannel bag into the vessel again, and let it stand a fortnight to settle: then bottle it off.

Black Currant Jelly.

This is made as the red, which see (p. 153).

There is nothing which relieves sore throats more than this jelly, it deterges, to use the medical expression, and abates thirst and fever. Barley water is frequently acidulated with it, which makes a most refreshing drink in all fevers. It is particularly serviceable in the low stages of typhus fevers.

Syrup of Black Currants. (Syrupus Ribis Nigri.)

Take of the juice of black currants, strained, two pints;
——— double refined sugar, fifty ounces:
Dissolve the sugar, and boil to make a syrup.

A tea-spoonful of this is given to children in the thrush.

COMMON VINE.

VITIS VINIFERA.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Petals* adhering at their apices, withered: *Seed* five-seeded, above.

Spec. Char. *Leaves* lobate, sinuate, naked.

DESCRIPTION.

The vine rises to a considerable height, and climbs by means of tendrils. The leaves are deeply serrated, commonly divided into three lobes, having long footstalks. The calyx is cut into five segments. The petals are five, whitish, and soon drop. The fruit is a large round berry of one cell, and has five hard seeds of an irregular form.

HISTORY.

1. The hardy vines, which ripen in August, are, the black July grape; black sweet-water white ditto; black Corinth, or currant.

2. In September, the early white muscadine; white muscadine royal, or chasselas blanc; white le cour grape, or musk chasselas; red chasselas; red ditto; black Burgundy; black Frontignac; black cluster, having hoary whitish leaves, and short compact clusters.

3. Ripening in October, red Hamburgh, black ditto. The grapes of both large.

Tender vines, seldom ripening unless the autumn proves very warm and mild; and are therefore often planted against hot-walls, hot-houses, and forcing-frames.

1. Ripening in September, red Frontiniac; grisly ditto; white ditto; white muscat of Alexandria; red ditto.

2. Ripening in October, St. Peter's; Tokay; white Syrian exceeding large cluster); red raisin; white ditto; claret.

The hot-house ripens some of the early sorts in May and June, others in July and August.

The vine, besides in England, grows in temperate situations in many parts of the world, and is cultivated very generally for the sake of its agreeable subacid fruit. Before they are ripe, grapes are extremely harsh and acid, and by expression furnish a liquor which is called verjuice. It contains malic acid, super-tartrate of potass, and extractive, and may be made to furnish wine by the addition of sugar.

Raisins.—As the grape advances to maturity, the quantity of sugar in it increases, while that of malic acid diminishes: by this means not only the water they contained is dissipated, but the quantity of acid seems to be diminished. They become more saccharine, mucilaginous, and laxative than the recent grape, but are less cooling.

PREPARATIONS.

Raisin Wine.

To one gallon of water put six gallons of sun raisins; let it stand in a tub twelve days, stir frequently, press the raisins as dry as possible, and put the liquor into a cask of the proper size: to ten gallons put a quart of brandy. If you wish to make it very rich, you may put seven pounds of raisins to a gallon, and dissolve five pounds of sugar-candy in the liquor, before you put it into the barrel; when made thus it must stand longer, and is scarcely inferior to any foreign wine.

Sherry. (Vinum album Hispanum. E. Vinum. L.)

Wine is the juice of the grape altered by fermentation. The numerous varieties of wine depend principally on the proportion of sugar contained in the must, and the manner of its fermentation. When the proportion of sugar is sufficient, and the fermentation complete, the wine is perfect and generous: if the quantity of sugar be too large, part of it remains undecomposed, as the fermentation is languid, and the wine is sweet and luscious; if, on the contrary, it be too small, the wine is thin and weak; and if it be bottled before the fermentation be completed, it will proceed slowly in the bottle, and, on drawing the cork, the wine will sparkle in the glass, as, for example, Champaigne. When the must is separated from the husk of the grape before it is fermented, the wine has little or no colour: these are called white wines. If, on the contrary, the husks are allowed to remain in the must while the fermentation is going on, the alcohol dissolves the colouring matter of the husks, and the wine is coloured: such are called red wines. Besides, in these principal circumstances wines vary much in flavour. The red wines most commonly drunk in this country are Port, which is strong and austere, containing much tannin, and claret, which is thinner and higher flavoured. Our white wines are all strong, Madeira, Sherry, Lisbon, Malaga, and Hock. Of these Hock is the most acidulous, and Malaga the sweetest.

MEDICAL USE.

Wine, taken in moderate quantities, acts as a beneficial stimulus to the whole system. It promotes digestion, increases the action of the heart and arteries, raises the heat of the body, and exhilarates the spirits. Taken to excess, it produces inebriety, which is often succeeded by head-ach, stupor, nausea, and diarrhœa, which last for several days. Habitual excess in wine debilitates the stomach, produces inflammation of the liver, weakens the nervous system, and gives rise to dropsy, gout, apoplexy, and cutaneous affections.

One cannot but lament that a remedy so extremely useful should be so difficult to procure genuine, for it is a known fact that dear things are always sophisticated; and I would here remark, that Providence has with consummate wisdom diversified climates, and hence productions, to create a spirit of intercourse, barter, or trade; and that when any government, through a narrow, contracted, sneaking jealousy, prohibits by duties the purchase of such a necessary as wine, of a neighbour, that this act is a sin against the omnipotent Creator, and productive to mankind of the highest calamity, and all good men should endeavour to open the eyes of such rulers, and make them sensible of both the wicked-

ness and impolicy of such envious jealousy. Peace and good will should prevail throughout the world, and we shall ever find, that if our neighbours the French be rich, they would be less inclined to do us an injury and go to war than when poor; and it is worthy of remark, that the French once thought themselves so wretched in their own poor soil, that they invaded Italy, and, bringing thence some vines, the whole country has become a vineyard, and more delicious wine is produced in France alone than in all the world beside.

In Italy an useful oil is drawn from the grape stones. In order to separate the seeds from the husks and refuse matter, the mash is put into a bucket with some water and worked about with the hands until the seeds, from their superior weight, have fallen to the bottom of the vessel. They are then to be removed and dried in the sun, or by any other way, as soon as possible: when a sufficient quantity is collected, the whole is to be ground in the same kind of mill that is used for hemp- and cole-seed: being then cold drawn, a fine oil is procured, which is scarcely distinguishable from common olive oil. The refuse matter, being scalded in a little hot water, yields a fresh portion of oil, though of an inferior quality, which burns excellently well in a lamp, giving out no unpleasant odour, and very little smoke. I recollect somewhere to have read of a person who took the loppings or prunings of the vine and made excellent vinegar from the same, and even wine with the aid of sugar.

COMMON LUNGWORT.

PULMONARIA OFFICINALIS.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* funnel-shaped, pervious in the throat: *Calyx* prismatic five-angled.

Spec. Char. *Leaves* radical, ovate-cordate, hairy.

DESCRIPTION.

This plant rises to a foot in height. Stem is erect, rough. Leaves oblong, pointed, rough, with white spots on the upper surface. The flowers are reddish and purple. The calyx consists of one leaf, divided on the top into five points. The corolla is cut in the margin into five obtuse segments. The seeds are four, lodged in the bosom of the permanent calyx.

HISTORY.

It is a plant common enough in hedges, and in shady and rather moist situations. It flowers in May. From its beauty it has obtained a place in our gardens.

MEDICAL VIRTUE.

It is a popular remedy, as Dr. Woodville observes, probably from its spotted foliage, resembling in this the freckled appearance of the lungs. It is not admitted into our Pharmacopœias, and might have been rejected by me, unless the illustrious Haller had said that its viscous juice, possessing some degree of acidity, had been found of use to take off a dryness of the throat, and in a case of cough, accompanied with spitting of blood.

COMMON GROMWELL.

LITHOSPERMUM OFFICINALE.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* funnel-shape, neck perforate, naked: *Calyx* five-parted.

SPEC. CHAR. *Corolla* scarcely exceeding the calyx: *Leaves* lanceolate: *Seeds* polished.

DESCRIPTION.

THE stem is erect, and beset with short bristly hairs. The leaves are alternate, sessile, pointed, hairy beneath, and studded with cartilaginous tubercles above. The flowers are of a pale yellow colour. The calyx is divided into five segments. The corolla is monopetalous, funnel-shaped, mouth naked, its border is cut into five blunt teeth. The seeds are four, egg-shaped, shining and extremely hard.

HISTORY.

It grows in England on a dry gravelly soil. Its flowers appear in May and June. The seeds have the most exquisite polish, and are of a stony hardness and appearance. Hence Pliny, speaking of these, says, "Nec quicquam inter herbas majore quidem miraculo aspexi. Tantus est decor, velut aurificum arte alternis inter folia candicantibus margaritis: tam exquisita difficultas lapidis ex herbâ nascentis."

MEDICAL USE.

As the lungwort gained its reputation and trial from the resemblance to the lungs, so superstition thought that Providence pointed out this as a remedy against the stone, the seeds being made to indicate such virtue, being stones themselves. Haller says that these effervesce with an acid. The fact is, that the internal part is of the nature of almonds, with more oil in it, and a decoction of the seed of the lithospermum is lubricating, and hence beneficial in the stone and strangury. Murray says of this remedy, "Lotum movere hisce quidem credo, et in stranguriâ efficere aliquid posse, quum ob nucleum emulsivæ naturæ est." The root is used by ladies as paint.

OFFICINAL BUGLOSS,
OR
ALKANET.
ANCHUSA OFFICINALIS.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* funnel-shaped, the throat closed by prominences: *Seed* hollowed at the base.

Spec. Char. *Leaves* lanceolate, rough: *Spikes* both lateral and terminal imbricated: *Calyx* five-parted.

DESCRIPTION.

The plant rises about two feet. Leaves alternate, narrow, lanceolate, rough, hairy. Flowers purple. Calyx rough, cut into five acute segments. Corolla funnel-shaped. Limb cut into five obtuse segments. Seeds four.

HISTORY.

This plant is seldom found wild in England, but is common on the continent, and is cultivated in our gardens. It arranges under the natural order Asperifoliæ.

MEDICAL USE.

Boerhaave, speaking of this plant, says: "In tussi invete-

rata et omnibus morbis pulmonum prodest, folia et radices in decoctis pectoralibus adhibentur, succus ejus cum magno successu in pleuritide datur."—"A decoction of the leaves and root of the alkanet is advantageous in inveterate coughs, and all disorders of the chest. It is both demulcent and pectoral, and the expressed juice is given with great success in pleurisy." Chomel relates, that boiled with milk it is efficacious in dysentery. Being of a glutinous nature, it is probable that it may be of some use, although of no great medical virtue. What surprises most is the vaunted accounts of its efficacy in the cure of melancholia and other hypochondriacal diseases. But then it must be steeped in strong ale and wine:—"Quo vino inditum animi voluptatis augere, hilaritatemque offerre creditur."—Dios. l. iv. c. 128. Hence it is reckoned as one of the four grand cordial flowers. But as Dr. Woodville justly observes, the efficacy of warm water as a diluent, and of wine as a true cordial, cannot be denied, and this will explain to us the varied accounts of certain plants acting according to the vehicle employed.

COMMON BUGLOSS,

BORAGO OFFICINALIS.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* rotate: the *throat* closed with rays.

SPEC. CHAR. *Calyx* patent: all the *leaves* alternate.

DESCRIPTION.

THIS plant rises to two feet, stalk much branched. Leaves undulate, hairy, ciliate, vaginant. Flowers conspicuous, blue, pendent. Calyx cut into five segments, permanent. Corolla monopetalous, wheel-shaped. Border cut into five large spreading pointed segments. The mouth closed with five prominences, blunt, notched at the end. The calyx serves the office of capsule, and contains the seeds, which are four, of an irregular shape.

HISTORY.

It is a perennial plant, and although not indigenous to this climate, has stolen out of the gardens, and is to be found in waste grounds and on old walls, usually near the residence of man. Bolduc relates, that a decoction of borage leaves, evaporated to the consistence of a syrup, and set by for a few days, yielded saline crystals, partly in form of fine needles, and partly

cubical; that the needled crystals were found to be perfect nitre, and the cubical sea salt: that by passing the decoction through quicklime before the inspissation, both salts were obtained in greater purity and larger quantity: that the substance of the leaves remaining after the boiling being dried and burnt, and the ashes elixated with water, the lye, properly evaporated and set to shoot, yielded first a vitriolated tartar, and afterwards sea salt; the liquor after the crystallization also proved alkaline.

Common observation also shows that this plant, if dry, and put upon the fire, emits a sort of coruscations, with a slight detonation in the burning, which points out the nitre it contains.

MEDICAL VIRTUES.

The borage is esteemed as one of the four grand cardiac plants. But then it must be mixed with wine.

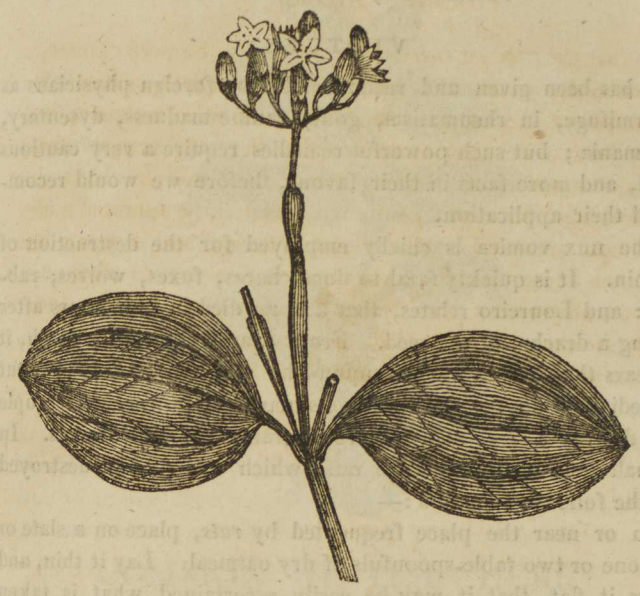
> Vinum potatum quo sit macerata buglossa,
> Mœrorem cerebri dicunt auferre periti.
>
> *Schol. Salern.* c. xxi.

But its real use is in the composition of a ptisan to aid the operation of Nature, or rather as substituting what is bland and unirritating for the usual stimulus of food to allay action. Hence it is found of service in colds, and all inflammatory affections, as a diluting drink. In this way it may answer the high encomium on it given by Boerhaave:—"Hæc planta contra bilem exasperatam vobis commendabo, succus expressus saporem spumantem refert sine ullâ acrimoniâ, nam est subdulcis, saponaceus, et pro summo solamine in morbis adhibetur, si cum sero lactis vel syrupo citri gratior redditus diluatur, tum in omni morbo inflammato, podagrâ, phrenitide, paraphrenitide, et peripneumonia convenit." According to Dr. Woodville and others, the diluent does the business, and the use of such kind of herbs is only to cloak the aqueous fluid in the appearance of a medicine.

Under the idea that it is cooling, it is put into a mixture of cider, water, and lemon-juice, with some wine added, when it has the emphatic appellation of a *cool tankard*, and this is drunk in the middle of summer as a most cooling refreshing drink.

Malouin remarks, that the juice of the leaves, which is not green like that of most other herbs, but of a brown colour, added to the bitter mixtures of the juices of cresses, chervil, &c. takes off their unpleasantness.

Dr. Withering remarks, that the young and tender leaves are good in sallads, or as a po'-herb.



VOMIC NUT,
OR
POISON NUT.
STRYCHNOS NUX VOMICA.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* five-cleft: *Berry* one-celled, with a ligneous bark.

Spec. Char. *Leaves* ovate: *Stem* unarmed.

DESCRIPTION.

It is a large tree. The young branches have a gouty appearance. The leaves are in pairs, upon short footstalks, ovate, with three or five ribs. The flowers are terminal in a fascicular kind of umbel. Calyx tubular, five-toothed. Corolla monopetalous, tube cylindric, the border cut into five segments.

HISTORY.

It is a native of the East Indies, and was introduced into England in 1770 by Dr. Russel. The nut is flat, round, about an inch broad, and near a quarter of an inch thick, with a prominence of a gray colour, covered externally with woolly, and internally with hard and tough like horn, and remarkably bitter.

VIRTUES.

It has been given and recommended by foreign physicians as a vermifuge, in rheumatism, gout, canine madness, dysentery, and mania; but such powerful remedies require a very cautious hand, and more facts in their favour, before we would recommend their application.

The nux vomica is chiefly employed for the destruction of vermin. It is quickly fatal to dogs, hares, foxes, wolves, rabbits: and Loureiro relates, that a horse died in four hours after taking a drachm of the seed. From examination after death, it appears that it does not act upon the stomach or bowels, but immediately on the nerves by its narcotic power. A scruple will destroy a large dog, and four grains has killed a cat. In a small quantity it is fatal to rats, which are readily destroyed by the following method:—

In or near the place frequented by *rats*, place on a slate or tile one or two table-spoonfuls of dry oatmeal. Lay it thin, and press it flat, that it may be easily ascertained what is taken away. The rats, if not interrupted, will come regularly there to feed; supply them with fresh oatmeal for two or three days; and then, well mixing, in about six table-spoonfuls of dry oatmeal, three drops of oil of aniseeds, feed them with it for two or three days more. Afterward, for one day, give them half the quantity of this scented oatmeal which they have before eaten; and, next day, the following mixture: To four ounces of dry oatmeal, scented with six drops of oil of aniseeds, add half an ounce of the poison-nut powder, pounded very fine in a mortar, and sifted through fine muslin. Mix this with the scented oatmeal; lay it on the tile or slate, let the rats eat it, without interruption, for twenty-four hours. A few hours after eating any of it, they will be seen running about, as if drunk or paralytic; but they generally, at last, retire to their haunts, and die. When they have, during the twenty-four hours, eaten only a small portion, leave the remainder of the mixture twenty-four hours longer; after which it will be best to burn what is left, a fresh mixture being prepared at so trifling an expense when wanted.

The doors of the place where the mixture is exposed to the rats, should be kept shut, to prevent them from being disturbed, and to keep children and domestic animals from getting at it.

COMMON WINTER CHERRY.

PHYSALIS ALKEKENGI.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* rotate: *Stamina* conniving: *Berry* within the calyx, inflated, bilocular.

Spec. Char. *Leaves* in pairs, entire, acute: *Stem* herbaceous, beneath subramous.

DESCRIPTION.

The root of this plant is perennial, but it dies down every year. The leaves are alternate, sometimes two together, of an irregular shape, undulated, pointed, veined. Calyx permanent, becoming a large, orbicular, pentangular, inflated membrane, encompassing the berry, which is two-celled, and contains numerous flat kidney-shaped seeds.

HISTORY.

It is a native of the south of Europe, common in our gardens, and has been cultivated ever since the time of Gerarde, in 1597. It flowers from July till September, and ripens its fruit in October.

MEDICAL USES.

This is also one of the plants discarded from the Pharmacopœias; and we might be tempted to follow the routine of fashion, unless the great Boerhaave had said "it was good in fevers, and disorders of the kidneys."

"Baccæ habent succum vinosum penetrantissimum, similem succum citri vel vini; hinc in febribus ardentibus laudatur, hic succus quoque est diureticus, ergo in morbis renum commendatur, et quidem optimus est, quia nil in nostro corpore nisi sola urina, quæ in putredinem alcalinam vergit, hinc alcalia diuretica vobis semper sint suspecta. Baccæ exsiccatæ, in pollinem contritæ et vino infusæ est summum diureticum, quod etiam alvum movet, sic etiam contra calculum laudatur, valet contra omnes morbos ardentes vi suâ refrigerante, semina exsiccata et contrita cum saccharo ad unciam dimidiam sunt optima in omnibus renum morbis, instar thée et coffé adhibita renes purgunt, baccæ valent contra sanguinem congrumatum, icterum, stranguriam, urinæ remoram arthritidem et hydropem; fumus seminis ore exceptus mirè prolicit *vermiculos* ex dentis cavo; ex baccis fiunt trochisci optimi."

The dose is six to twelve berries, or an ounce of their expressed juice. There is no danger that can be derived from a larger number, as in Spain and Switzerland they frequently supply the place of other edible fruit.

Ray, our countryman, whose medical knowledge was tempered with superstition, mentions, that a gouty person prevented the returns of this disorder by eating eight of these cherries at each change of the moon.

It is some knowledge, however, to know, that should children, or any other person, foolishly be invited to taste of this fruit, they will not surely die; for if not their medical virtues, their innocency has been abundantly proved.

MANDRAKE.

ATROPA MANDRAGORA.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* campanulate: *Stamina* distant: *Berry* globular, two-celled.

SPEC. CHAR. No *stem*: *Scape* one-flowered.

DESCRIPTION.

A SMALL plant. Leaves radical, ovate, veined, waved; at first erect, afterwards resting on the ground. Flowers large, whitish. Calyx five-cleft, segments pointed. Corolla deeply cut into five segments. Berry large. Root fusiform.

HISTORY.

Native of the southern parts of Europe, flowers in March and April. Cultivated with us, according to Turner, in 1562.

MEDICAL USE.

This is one of the plants of which such strange things are reported. Its root frequently dividing into two below, and shooting out fusiform radicles, on each side, gave a resemblance to a man, and being aided by art, this likeness was rendered so com-

plete as to deceive the multitude by such an extraordinary vegetable production. The possessor of such wonders reported, that it was death to dig up the root; that screams were heard when these became wounded; and that they were to be drawn out by means of a dog, which perished; and in this way only they could be extracted.

" Ferunt has præstantissimas radices non sine periculo manu effodi, quapropter eas primum confodiendum esse, ita ut minimum ex radice terrâ sit conditum, dein ab eâ religandum canem, a quo postea fugiente radix extrahitur et sequitur, sed non adeo longe, quandoquidem statim atque effossa est, canis moritur: nullum postea accipientibus amplius metum esse, imo summe proficuas esse, maleficia et infortunia quæcunque avertendo, et felicitates quascunque desiderabiles afferendo."—Geoff.

" As an amulet this root was deposited on the mantle-pieces to avert misfortune, and bring to the possessor every desirable felicity:"—so degraded once was the Materia Medica, filled with such absurd and ridiculous fancies!

This root is anodyne and soporific; hence our immortal bard makes Othello say, after his destruction of Desdemona,

> ———Not poppy nor mandragora,
> Nor all the drowsy syrups of the world,
> Shall ever medicine me to that sweet sleep
> Which I had yesterday.

By this it appears it was formerly given in the form of a syrup, and in powder it has been administered for this purpose in the dose of three or four grains of the dried root. A tincture has been employed, but the extract might answer better. Boerhaave mentions, that even the smell of the plant induces sleep:—" Hæc planta loco clauso illata somnum conciliat iis qui dormire non poterant, hinc odore dicitur somnum excitare."

It has been employed by the ancients in maniacal cases; and Pallas mentions its frequent use in dreadful chronic disorders, which require the alleviation of some powerful drug.

Hoffberg advises its use in " gout," in the dose of a scruple three times a day; a disease that baffles the ordinary remedies, and its unhappy sufferers are too often doomed to become the martyrs of dangerous experiments, which debilitate the habit, stop for a time the progress of a disease perhaps salutary to the patient, but soon after he finally sinks under some other more dreadful malady.

In the king's evil, scrophulous or glandular affections, the leaves boiled with milk are reported by the great Boerhaave as beneficial: " Folia ejus cum lacte in cataplasmatis formam cocta conducunt in omnibus tumoribus scrophulosis et scirrhosis."

Woodville reports, that the berries of the mandrake may be eaten without producing any bad effects, from the authority of Ray. Boerhaave makes it doubtful: " Fructus comestus dicitur vitam extinguere, verum clari viri in Gallia publicè sine noxâ ederunt baccas." Haller says, that Rhazes relates, that such as have eaten the berries of the mandragora, have felt a heaviness of the head, and that five of these apples have produced syncope and other dangerous symptoms, which he has cured; and that modern authors, worthy of credit, confirm the report of its soporific effects, and sometimes producing convulsions and violent maniacal fury. Respecting the root Haller relates, that a priest having chewed it for liquorice root, it produced cardialgia, syncope, and almost mortal delirium. Such contradictory reports merit inquiry. Perhaps next to an emetic, acids may counteract this poison.

DEADLY NIGHTSHADE.

ATROPA BELLADONNA.

Class V. Pentandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* campanulate: *Stamina* distant: *Berry* globular, two-celled.

SPEC. CHAR. *Stem* herbaceous: *Leaves* ovate, entire.

DESCRIPTION.

ROOT very thick, whitish, sending forth strong purple-coloured stems, from three to five feet high. Leaves of an unequal size, entire, oval, pointed, in pairs, on short or hardly any foot-stalks. Flowers of a dark purple, large, pendant, bell-shaped, furrowed, the border of which is cut into five segments.

HISTORY.

This plant is common in stony waste grounds, and flowers in

June or July, and its berries ripen in September, when it acquires a shining black colour. It is supposed to be the Στρύχνος μανικὸς of Dioscorides, and has been long known as a very fatal poison.

MEDICAL VIRTUES.

Ray found, by applying the leaves of the belladonna near the eye, a remarkable relaxation of the uvea was produced. Sauvages (Nosol.) supposes that the belladonna was the plant which produced such strange and dreadful effects upon the Roman soldiers during their retreat, under the command of Anthony, from the Parthians: they are said to have "suffered great distress for want of provisions, and were urged to eat unknown plants; among others, they met with an herb that was mortal; he that had eaten of it lost his memory and his senses, and employed himself wholly in turning about all the stones he could find; and, after vomiting up bile, fell down dead."—Plutarch's Life of Anthony. The Scotch historian Buchanan relates, that the Scots mixed a quantity of the juice of the belladonna (Solanum somniferum) with the bread and drink which by their truce they were to supply the Danes with, which so intoxicated them that the Scots killed the greatest part of Sweno's army while asleep.—Lib. vii.

Ray relates a curious instance of the effects of this plant in the following words (Hist. Plant. p. 680):—"Accidit, ni fallor, tempore pontificis maximi Urbani ultimi, ut quidam de famulitio cardinalis magni nominis (ut mihi hîc Augustæ retulit ejus hortulanus) infunderit in vino Malvatico herbam illam quam Bellam Donnam vocant, daturam aliàs per noctem ut ejus herbæ effectus discerent; infusum hoc propinarunt cuidam fratri mendicanti ex conventu S. Hieronymi, qui Patavii Fratrum ignorantiæ dicitur, à primo breve delirium, cachinni, gesticulationes variæ; dein insania vera, post stupor mentis qualis est ebriorum vigilantium. Cardinalis pro ebrio in carcere includit; deinde à medico qui rem subolfecerat innocens pronuntiatur, qui aceti cyatho propinato, à dementia quam Bella Donna causavit eum liberat."—Hachstellerus Decad. 7 ob.

And Shakespeare, in his Macbeth, makes Banquo say,

> "Or have we eaten of the insane root
> That takes the reason prisoner?"

The number of these berries necessary to produce deleterious effects may probably depend upon the state of maturity in which they are eaten: if not more than three or four be swallowed, according to Haller's account no bad consequence ensues: "Baccæ sapore fatuo dulci possunt absque noxa edi si numerus tres quatuorve non excesserit: plures etiam à studioso medicinæ Coloniensi nomine Simonis vidi deglutiri."—Hal. Stirp. Helv. No. 579.

But when a greater number of the berries are taken into the stomach, scarcely half an hour elapses before violent symptoms supervene; viz. vertigo, delirium, great thirst, painful deglutition, and retching, followed by furor, stridor dentium, and convulsions; the eye-lids are drawn down, the uvea dilated and immovable*; the face becomes red and tumid, and spasms affect the mouth and jaw; the general sensibility and irritability of the body suffer such great diminution, that the stomach often bears large and repeated doses of tart. emet. (gr. 14.) without being brought into action; the pulse is small, hard, quick, and subsultus tendinum, risus sardonicus et coma, generally precede death. The body being opened, inflammation has been discovered in the intestines, mesentery, and liver, (Comm. Nor. 1743, p. 61.) And Boulduc, (Hist. de l'Acad. des Sc. de Paris, 1703, p. 56,) found the stomach of a child eroded in three places. It may be necessary to remark, that vinegar, liberally drunk, has been found very efficacious in obviating the effects of this poison; evacuations should, however, be always first premised.

The great Boerhaave relates, "that one berry alone is fatal, that a gardener was hanged for neglecting removing these plants, and that there is only one antidote known,—honey mixed with water, and a clyster of honey and oil." His words are: "Hæc planta est venenatissima, nam si homo unicam baccam comedat, ilico convellitur, si plus, moritur, neque remedium contra hoc venenum notum est, ut tristissimo casu hic in Batavia contigit, ut pueri allecti pulchritudine harum baccarum comederit, et brevi suffocati mortui sint, sic et in Aula Hetrusca accidit, ubi tres pueri inde mortui sunt, qua de re hortulanus, cui jussum erat has venenatas plantas cavere, suspendio fuit plexus; unicum

* From this effect of dilating the pupil, professor Reimar was induced to employ the belladonna before performing the operation for the cataract, by dropping some of the infusion into the eye.

tantum est remedium, quod est mel cum aquâ, in magnâ copiâ, et clysma ex melle et oleo; externè conducit in tumoribus resolvendis."

Conrad Gesner, the greatest genius of the age he lived in, who almost merits the proud appellation of the father of botany, had the superior courage to try the expressed juice of this plant: boiled with sugar, and taken to the amount of a tea-spoonful, it imitated the operation of opium, and cured in him a most violent dysentery.

Lambergen cured with the belladonna infused in water, by the dose of two grains, increased to four daily, a true cancer.

Junker succeeded in the same manner. Vandenblock removed also a cancerous tumour of the breast by the internal use of the belladonna.

Degner dissipated a cancer of the breast, and cured an ulcer of the leg arising from the bite of a leopard.

Nor must we omit here the experience of our own practitioners, Bromfield and Gataker, the latter of whom found it beneficial in the hooping cough.

In the Phil. Trans. vol. i. p. 77, mention is made of a woman being cured of a cancer in her breast, by taking a tea-cupful of an infusion of the dried leaves every morning. The complaint at first grew worse, but after persevering some time in the use of the medicine, the symptoms abated, and in about half a year she was perfectly well. The infusion was made by pouring ten tea-cupfuls of boiling water on twenty grains of the dried leaves, and letting it stand to infuse all night in a warm place.

The celebrated Cullen says: "I have had a cancer of the lip entirely cured by it;—a scirrhosity in a woman's breast, of such a kind as frequently proceeds to cancer, I have found entirely discussed by the use of it;—a sore a little below the eye, which had put on a cancerous appearance, was much mended by the internal use of the belladonna; but the patient, having learned somewhat of the poisonous nature of the medicine, refused to continue the use of it, upon which the sore again spread, and was painful; but upon a return to the use of the belladonna was again mended to a considerable degree; when, the same fears again returning, the use of it was again laid aside, and with the same consequence of the sore becoming worse. Of these alternate states, connected with the alternate use of, and absti-

nence from, the belladonna, there were several of these alternations which fell under my own observation."

The leaves of the belladonna were first used externally to discuss scirrhous and cancerous tumours, and also as an application to ill-conditioned ulcers: their good effects in this way at length induced physicians to employ them internally for the same disorders, and we have a considerable number of well-authenticated facts which prove them a very serviceable and important remedy. But it must likewise be confessed, that many cases of this sort have occurred in which the belladonna has been employed without success: this, however, may be said of every medicine.

In our present state of medical science we would advise extreme caution in the use of such a poisonous drug: for, as the great Haller says, we have seen from its use a furious delirium arise, which has continued; a permanent blindness; and more than one case where this remedy, used as a cure for the gout, has proved fatal to the party.

HENBANE.

HYOSCYAMUS NIGER.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* funnel-shaped, obtuse: *Stamina* inclined: *Capsule* operculate, bilocular.

Spec. Char. *Leaves* embracing the stem, waving: *Flowers* sessile.

DESCRIPTION.

The plant rises from one to two feet. The leaves are large, cut into irregular lobes or pointed segments, of a glaucous colour, undulated, woolly, and embrace the stem. Flowers are funnel-shaped, the tube short, the border expanded, and cut into five obtuse segments. The colour is a dingey yellow, with bright purple streaks, which is the livery of poisonous herbs, purple with yellow being the characteristic. The calyx is also divided into five short-pointed downy segments.

HISTORY.

Henbane is an annual plant, which grows in great abundance in most parts of Britain, by the road sides and among rubbish, flowers in July. Its smell is strong and peculiar, and when bruised somewhat like tobacco, especially when the leaves are burnt; and on burning they sparkle, as if they contained a nitrate; when chewed, however, they have no saline taste, but are insipid, mild, and mucilaginous.

MEDICAL USE.

This, like the last, is often a fatal poison. Many examples might be produced; but out of the many instances of this kind, we shall only advert to some of them, in order to show that the roots, seeds, and leaves of this plant have separately produced poisonous effects. Dr. Patouillat, physician at Toucy in France, relates, in the Phil. Trans. vol. xl. p. 446, that nine persons, in consequence of having eaten the roots of hyoscyamus, were seized with most alarming symptoms: "Some were speechless, and showed no other signs of life than by convulsions, contortions of the limbs, and the risus sardonicus; all having their eyes starting out of their heads, and their mouths drawn backwards on both sides: others had all the symptoms alike: however, five of them did now and then open their mouths, but it was to utter howlings. The madness of all these patients was so complete, and their agitations so violent, that in order to give one of them the antidote, I was obliged to employ six strong men to hold him while I was getting his teeth asunder to pour down the remedy." And, what is remarkable, Dr. Patouillat says, that on their recovery all objects appeared to them as red as scarlet, for two or three days. Further accounts of the effects of these roots are given by Wepfer de Cicut. &c. p. 230: Simon Pauli Quadr. p. 384: Blom, in Vet. Ac. Handl. 1774, p. 52. Respecting the seeds of henbane, we have an account given by sir Hans Sloane, in the Phil. Trans. vol. xxxviii. p. 99, of four children who ate them by mistaking the capsules, in which they were contained, for filberts. "The symptoms that appeared in all the four were great thirst, swimmings of the head, dimness of sight, ravings, profound sleep, which last in one of the children continued two days and nights." See also Essays and Observations, Phys. and Lit., vol. ii. p. 243: Helmont. Ort. Med. p. 306: Ephemer. Germ. annis 7 et 8, &c. The leaves of hyoscyamus,

we are told, were boiled in broth, and eaten by seven persons (five men and two women), who soon became affected with symptoms of intoxication. Dr. Stedman says: "I saw them about three hours after having eaten it; and then three of the men were become quite insensible, did not know their comrades, talked incoherently, and were in as high a delirium as people in the rage of a fever. All of them had low irregular pulses, slavered, and frequently changed colour: their eyes looked fiery, and they catched at whatever lay next them, calling out that it was going to fall."—Phil. Trans. vol. xlvii. an. 1750.

Haller relates, "that a young student of great spirit and thirst for knowledge (Simon), from an experiment on himself with this plant, became idiotic, and paralytic on one side, and was with difficulty restored."—"Memini sodalem meum Simonium, cum Leidæ mecum, anno 1725. Boerhaavii scholas frequentaret, aconita, apocyna, belladonnæ baccas impune devorasse, ab hyoscyami vero semine victum, nimiæ curiositatis pœnas dedisse, atque mente alienatum, alteroque latere resolutum, tamen à preceptore servatum fuisse." Stirp. Helv. n. 580.

Henbane, in a moderate dose, often produces sweat, and sometimes an eruption of pustules, and generally sound sleep, succeeded by serenity of mind and recruited vigour of the body; but, like the other narcotics, instead of these it sometimes gives rise to vertigo, headach, and general uneasiness. With particular individuals it occasions vomiting, colic pains, a copious flow of urine, and sometimes purging. In excessive doses its effects are fatal; general debility, delirium, remarkable dilatation of the pupils of the eyes, convulsions, death. Upon the whole, like opium, it is a powerful anodyne; and, like cicuta, it is free from any constipating effect, having rather a tendency to move the belly.

Dr. Cullen says: "We have indeed found the hyoscyamus to be often an agreeable anodyne and soporiferous medicine; and we have frequently found it such in persons who, from particular circumstances, did not agree with opium, and particularly because it was less binding to the body than opium. We judge, however, that it is more ready in full doses to give delirium than opium is, and therefore we found it in many cases to give turbulent and unrefreshing sleep; and notwithstanding its laxative qualities, for which we had employed it, we have been obliged to lay it aside." Stoerck and some others recommend this ex-

tract in the dose of one grain or two; but Dr. Cullen observes, that he seldom discovered its anodyne effects till he had proceeded to doses of eight or ten grains, and sometimes to fifteen, and even to twenty.

From the writings of Dioscorides and others, it appears that different species of henbane have been long used in the practice of medicine. By Celsus it was applied externally as a collyrium in ophthalmia; for allaying the pain of the toothach; and he gave it internally as an anodyne.

Heledius first gave the seeds of henbane in hæmoptoe (spitting of blood), and the same was afterwards successfully employed by Forrestus and our Boyle.

Clauder employed the same means in dysentery with advantage, and Turguet for epilepsy: but the danger of the remedy (for Turguet gave from eight to twenty-five grains) soon brought it into disuse.

It was at length revived by Dr. Stork of Vienna, who made an Extract by evaporating the expressed juice of the plant; and in convulsions he gave two grains, increasing the dose to five, six, even to ten and sixteen grains a day.

He conquered an epilepsy by giving six grains a day of the same remedy. Haller says, that he also cured several persons afflicted with this disease by mixing together a grain of the extract of hyoscyamus, with the same quantity of the misseltoe and pæony root, and giving at first one grain a day, each day augmenting the dose by a single grain until it was increased to twenty, when it was continued a week; after that twenty grains twice a day every other day, and on the alternate days only twenty grains, for another week, and then forty grains for two days, after which it was reduced to five grains every day.

Stork afterwards gave it in both furious and melancholy madness with success, administering daily at first two, then four to eight grains of the extract.

In hæmoptysis he gave three grains.

Convulsions were also cured by him in the same manner, as well as a bad palpitation of the heart.

He applied it also in wandering rheumatic pains, in indurations of the breast from retained milk, painful swellings, whether scirrhous or not, all scrofulous and cancerous ulcers, in inflamed and the blind piles. The remedy employed, besides the extract internally, was under the form of a cataplasm of

the bruised leaves, mixed with bread and milk; of an ointment made with the powder of the leaves, with wax and oil; of a simple powder, sprinkled on the sore, or as a decoction with milk.

Schenkbecher, as Haller reports, gave an ounce of the extract during the space of twelve days for a vertigo, which disappeared in consequence, and without the smallest injury to the patient.

Gesner cured with it a very strong hysteric affection.

After all these testimonies in its favour, it would be wrong in us at once to discard the hyoscyamus from amongst our catalogue of valuable medicinal plants, although it must be confessed that several practitioners have complained of not reaping the same successful issue in practice as has been related; and even the great Dr. Cullen affirms: "We have frequently employed it, but have never found it of any great virtue, not more than is to be met with in opium;" yet still we may hesitate in passing our final judgment, at the same time advising a very cautious use of a remedy that, injudiciously administered, might prove of the highest injury to the community; always anxious to dissuade from employing powerful poisonous remedies, except it be in cases truly deplorable, when indeed it may be perhaps justified, as leaving only the choice of two evils.

THORN-APPLE.

DATURA STRAMONIUM.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* funnel-shaped, plicate. *Calyx* tubular, angular, deciduous. *Capsule* four-valved.

DESCRIPTION.

This plant rises two feet in height. Stem large, upright, above forked. Leaves alternate, large, broad towards the base, pointed at the extremity, toothed, varying in the size of these teeth, standing upon strong footstalks. Flowers solitary, white, large, consisting of a single leaf, plicate, cut into five teeth, standing upon a long tube. Anthers conspicuous. Capsule covered with

spines, large, fleshy, opening with four valves, showing a column in the centre, giving nourishment and support to many kidney-shaped seeds.

HISTORY.

The thorn-apple is an annual plant, a native of America, gradually diffusing itself from the south to the north, and now even growing wild on dry hills and uncultivated places in England and other parts of Europe. The leaves are dark green, sessile, large, egg-shaped, pointed, angular, and deeply indented, of a disagreeable smell and nauseous taste. Every part of the plant is a strong narcotic poison, producing vertigo, torpor, death. Dr. Barton mentions the cases of two British soldiers who ate it by mistake for the Chenopodium album: one became furious and ran about like a madman, and the other died with the symptoms of genuine tetanus. The best antidote to its effects is said to be vinegar.

The following advertisement appeared in the Bath paper, with the respectable signature of Dr. Haygarth:

"Gardeners are particularly desired to take care never to throw poisonous plants out of gardens into the streets, lanes, or even the fields to which people can have access. Poor children, for diversion, curiosity, or hunger, are prompted to eat all kinds of vegetables which come in their way, especially seeds, fruits, or roots. This caution does not proceed from fanciful speculation, but from actual mischief, produced by the cause here specified. A physician has lately seen several children poisoned with the roots of the aconite or monkshood, thrown into an open field in the city of Chester, and with the seeds of the stramonium or thorn-apple, thrown into the street. The former were seized with very violent complaints of vomiting, an alarming pain of the head, stomach, and bowels; the latter with blindness, and a kind of madness, biting, scratching, shrieking, laughing, and crying, in a frightful manner. Many of them were very dangerously affected, and escaped very narrowly with life. These, and all other poisonous plants, taken out of gardens, should be carefully buried or burned."

I shall relate only the following case from Dr. Woodville: "A man, aged sixty-nine, labouring under a calculous complaint, by mistake boiled the capsules of the stramonium in milk, and in consequence of drinking this decoction was affected with

vertigo, dryness of the fauces, anxiety, followed with loss of voice and sense; the pulse became small and quick, the extremities cold, the limbs paralytic, the features distorted, accompanied with violent delirium, continual watchfulness, and a total suppression of all the evacuations; but in a few hours he was restored to his former state of health."

MEDICAL VIRTUES.

This plant has been long known as a powerful narcotic poison; its congener, the D. metel, is thought to be Στρύχνος μανικὸς of Theophrastus and Dioscorides, and is therefore the species received by Linnæus into the materia medica. The stramonium, in its recent state, has a bitterish taste, and a smell somewhat resembling that of poppies, or, as called by Bergius, narcotic, especially if the leaves be rubbed betwixt the fingers. By holding the plant to the nose for some time, or sleeping in a bed where the leaves are strewed, giddiness of the head and stupor are said to have been produced.

Odhelius tells us, that of fourteen patients suffering under epileptic and convulsive affections, to whom he gave the stramonium, in an hospital at Stockholm, eight were completely cured, five were relieved, and only one received no benefit. Bergius relates three cases of its success, viz. one of mania, and two of convulsions. Reef, a Swedish physician, mentions its utility in two cases of mania. Wedenberg cured four girls, affected with convulsive complaints, by the use of this medicine. Other instances of the kind might be added. Greding, however, who made many experiments with a view to ascertain the efficacy of this plant, was not so successful; for out of the great number of cases in which he employed the stramonium, it was only in one instance that it effected a cure; and he objects to the cases stated by Dr. Odhelius, on the ground that the patients were dismissed before sufficient time was allowed to know whether the disease would return again or not. In this country we are unacquainted with any practitioners whose experience tends to throw any light on the medical character of this plant. It appears to us, that its effects as a medicine are to be referred to no other power than that of a narcotic; and Dr. Cullen, speaking on this subject, says, "I have no doubt that narcotics may be a remedy in certain cases of mania and epilepsy; but I have not, and I doubt if any other person has, learned to distinguish

the cases to which such remedies are properly adapted. It is therefore that we find the other narcotics, as well as the stramonium, to fail in the same hands in which they had in other cases seemed to succeed. It is this consideration that has occasioned my neglecting the use of stramonium, and therefore prevented me from speaking more precisely from my own experience on this subject."

Dr. Stork, I believe, was the first who tried the thorn-apple as a remedy in mania and melancholy with considerable success. Several cases of the same diseases were also cured or relieved by it, under the direction of different Swedish physicians. Dr. Barton, professor of botany in America, considers it to be a medicine of great efficacy; and although, with others, it has frequently failed, it deserves the attention of practitioners, and well merits a trial in affections often incurable by other means. It has also been employed, and sometimes with advantage, in convulsive and epileptic affections. An ointment prepared from the leaves has been said to give ease in external inflammations and hæmorrhoids. The inspissated juice of the leaves has been most commonly used, but its exhibition requires the greatest caution. At first, a quarter of a grain is a sufficient dose. Dr. Barton gives it in powder, beginning with doses of a few grains, and increasing them in a few days to 15 or 20. In a case in which it was exhibited to the extent of 30 grains, it dilated the pupil of one eye, and produced paralysis of the eyelids, which was removed by a blister; and the bruised leaves, according to Plenk, soften hard and inflamed tumours, and discuss tumours in the breasts of nurses from indurated milk.

Hufeland gave it in the form of a tincture, prepared of two ounces of the seeds in four ounces of wine and one of diluted alcohol, in diseases of the mind.

TOBACCO.

NICOTIANA TABACUM.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* funnel-shaped, limb plicate: *Stamina* inclined: *Capsule* two-valved, two-celled.

Spec. Char. *Leaves* lanceolate-ovate, sessile, decurrent: *Flowers* with segments acute.

DESCRIPTION.

This plant rises from five to six feet in height; stalk erect. Leaves large, oblong, pointed, veined, entire, of a pale green, without footstalks. The bracteas are long, linear, pointed. The corolla is composed of a single petal, funnel-shaped, with a long tube beset with short hairs, and whose border is cut into five segments, ending acute. The calyx is large, also hairy, ending in five pointed segments. The capsule is oval, divided into two cells, containing many small roundish seeds.

HISTORY.

The Nicotiana is a native of America, and flowers in July and August. Tobacco was first imported into Europe about the middle of the sixteenth century by Hernandez de Toledo, who sent it to Spain and Portugal; at that time the ambassador of Francis II. resided at the court of Lisbon, and in the year 1560 he carried the tobacco into France, when it was presented to Catharine de Medicis as a plant from the new world possessing extraordinary virtues. The ambassador's name was Nicot, and hence the appellation Nicotiana. It appears from Lobel, that this plant was cultivated in Britain previous to the year 1570; and the introduction of the custom of smoking it in England is ascribed to sir Walter Raleigh. The cultivation of tobacco is now common in various parts of the globe, and though prohibited by the laws of this country, still the manufacture of it forms no inconsiderable branch of commerce.

MEDICAL USE.

This plant was first brought into Europe about the year 1560, from the island of Tobago in America, and is now sometimes cultivated for medicinal use in our gardens, but in general imported from America in large quantities. The leaves are about two feet long, of a pale green colour whilst fresh, and when carefully dried of a lively yellowish cast. They have a strong, disagreeable smell, like that of the narcotic plants, and a very acrid burning taste. Taken internally, they prove virulently cathartic and emetic, occasioning almost intolerable cardialgic anxieties. By boiling in water their virulence is abated, and at length destroyed. An extract made by long coction is recommended by Stahl and other German physicians as a safe and most effectual aperient, expectorant, detergent, &c.; but this medicine, which is extremely precarious and uncertain in strength, has never come into esteem among us. Of late, however, Tobacco, under the form of a vinous or watery infusion, and taken in such small doses as to produce little effect from its action on the stomach, has been recommended to the attention of practitioners by Dr. Fowler. He has found it to be a very useful and powerful diuretic, and has published many cases of dropsy and dysury, in which its employment has been attended with the

best effects. And these good effects have been confirmed by the observations of other practitioners.

Tobacco is sometimes used externally in unguents, for destroying cutaneous insects, cleansing old ulcers, &c. Beaten into a mash with vinegar or brandy, it has sometimes proved serviceable for removing hard tumours of the hypochondres; an account is given in the Edinburgh Essays of two cases of this kind cured by it.

Injections by the anus of the smoke or decoction have been used with advantage in cases of obstinate constipation threatening ileus, of incarcerated hernia, of ascarides, of spasmodic asthma, and of persons apparently dead from drowning or other sudden causes. It has been used internally in the form of syrup, conserve, and infusion, in cases of worms, epilepsy, amenorrhœa, asthma, &c.; but it is certainly too active to be thus ventured on. An infusion of its ashes, recommended in dropsy, is not probably different from other vegetable lixivia.

Dr. Cullen remarks, respecting tobacco: An infusion of from half a drachm to a drachm of the dried leaves, or of these as they are commonly prepared for chewing, for an hour or two, in four ounces of boiling water, affords an emetic which has been employed by some practitioners, but more commonly by the vulgar only. As it has no peculiar qualities as an emetic, and its operation is commonly attended with severe sickness, it has not been, nor is it likely ever to come into common practice with physicians.

It is more commonly employed as a purgative in clysters; and, as generally very effectual, it is employed in all cases of most obstinate costiveness; and its powers have been celebrated by many authors. I have known it to be in frequent use with some practitioners; and it is indeed a very effectual medicine, but attended with this inconvenience, that when the dose happens to be in any excess, it occasions severe sickness at the stomach; and I have known it frequently occasion vomiting.

It is well known, that in cases of obstinate costiveness, in ileus and incarcerated hernia, the smoke of burning tobacco has been thrown into the anus with great advantage. The smoke operates here by the same qualities that are in the infusions of it above mentioned; but as the smoke reaches much further into the intestines than injections can commonly do, it is thereby

applied to a larger surface, and may therefore be a more powerful medicine than the infusions. In several instances, however, I have been disappointed of its effects, and have been obliged to have recourse to other means.

The infusion of tobacco, when it is carried into the blood-vessels, has sometimes shown its stimulant powers exerted in the kidneys; and very lately we have had it recommended to us as a powerful diuretic of great service in dropsy. Upon the faith of these recommendations we have now employed this remedy in various cases of dropsy, but with very little success. From the small doses that are proper to begin with, we have hardly observed any diuretic effects; and though from larger doses they have in some measure appeared, we have seldom found them considerable: and when, to obtain these in a greater degree, we have gone on increasing the doses, we have been constantly restrained by the severe sickness at stomach, and even vomiting, which they occasioned: so that we have not yet learned the administration of this remedy so as to render it a certain or convenient remedy in any cases of dropsy.

The same circumstances have occurred to several other practitioners of this city and neighbourhood; and of late the trials of it have been very generally omitted, owing perhaps to our practitioners being directed at the same time to the use of the digitalis, with which they have had some more success.

From some experiments we are certain that tobacco contains a quantity of volatile parts that may be dissipated by long boiling in water; and that by such a practice its emetic, purgative, and narcotic qualities may be greatly diminished; and we are of opinion that the preparation in extract, as prescribed in the Wirtenberg Dispensatory, is upon a good foundation, and may be employed in pectoral cases with more advantage and safety than the simple infusion or decoction made by a short boiling only.

When we were restrained in employing the infusion of tobacco as a diuretic, as mentioned, we expected to succeed better with the decoction; and I have found that by long boiling this might be given in much larger doses than the infusion; but we still found it retaining so much of the emetic quality, that we could not employ it as a diuretic without being interrupted in its use by the same emetic quality that had interrupted the use of the infusion.

Besides the internal uses of tobacco mentioned, I must now remark, that it has likewise been commended for its virtues as

externally employed. I have known the infusion employed with advantage as a lotion for some obstinate ulcers: but the many instances of its being absorbed, and proving thereby a violent poison, dissuade from such a practice; especially as there are other medicines, of as much efficacy, that may be employed with much more safety. Bergius recommends it to be employed as a fomentation in the paraphymosis; but we have had no opportunity of employing it.

Smoking, Snuff-taking, &c.—The following excellent observations are extracted from Dr. Cullen:—Tobacco is a well-known drug, of a narcotic quality, which it discovers in all persons, even in small quantity, when first applied to them. I have known a small quantity of it, snuffed up the nose, produce giddiness, stupor, and vomiting; and when applied in different ways, in larger quantity, there are many instances of its more violent effects, even of its proving a mortal poison. In all these instances it operates in the manner of other narcotics: but along with its narcotic qualities it possesses also a strongly stimulant power, perhaps with respect to the whole system, but especially with respect to the stomach and intestines; so as readily, even in no great doses, to prove emetic and purgative.

By this combination of qualities all the effects of tobacco may be explained, but I shall begin with considering its effects as they appear in the use of it as an article of living.

As such it has been employed by snuffing, smoking, and chewing; practices which, as having been for two hundred years past common to all Europe, need not be described here. Like other narcotics, the use of it may be introduced by degrees; so that its peculiar effects, even from large quantities employed, may not, or may hardly at all appear: but this does not contradict the account I have given of its quality with respect to persons unaccustomed to it, and even of its tendency to show its power in those much accustomed to it; for even in these the power of habit has its limits; so that in persons going but a little beyond the dose to which they have been accustomed, very violent effects are sometimes produced.

On this subject it is to be remarked, that the power of habit is often unequal; so that in persons accustomed to the use of tobacco, a lesser quantity than what they had been accustomed to, will often have stronger effects than had before commonly appeared. I knew a lady who had been for more than twenty

years accustomed to take snuff, and that at every time of day; but she came at length to observe, that snuffing a good deal before dinner took away her appetite; and she came at length to find, that a single pinch, taken any time before dinner, took away almost entirely her appetite for that meal. When, however, she abstained entirely from snuff before dinner, her appetite continued as usual; and after dinner, for the rest of the day, she took snuff pretty freely without any inconvenience.

This is an instance of the inequality of the power of habit in exerting its effects; but in what cases this may take place we cannot determine, and must now go on in marking its usual and ordinary powers. When snuff, that is, tobacco in powder, is first applied to the nose, it proves a stimulus, and excites sneezing; but by repetition that effect entirely ceases.

When snuff is first employed, if it be not both in small quantity, and be not thrown out immediately by sneezing, it occasions some giddiness and confusion of head; but by repetition these effects cease to be produced, and no particular effect of it appears in the accustomed, when not taken beyond the usual quantity. But even in the accustomed, when it is taken beyond the usual quantity, it produces somewhat of the same giddiness and confusion of head that it did when first employed; and in several cases these effects in the accustomed, depending on a larger dose, are not only more considerable, as they act on the sensorium, but as they appear also in other parts of the system, particularly in the stomach, occasioning a loss of appetite and other symptoms of a weakened tone in that organ.

With respect to this, it is to be observed, that persons who take a great deal of snuff, though they seem, from the power of habit, to escape its narcotic effects, yet as they are often liable to go to excess in the quantity taken, so they are still in danger from these effects operating in an insensible manner; and I have observed several instances of their being affected in the same manner as persons are from the long-continued use of other narcotics, such as wine and opium; that is, by a loss of memory, by a fatuity, and other symptoms of the weakened or senile state of the nervous system, induced before the usual period.

Among other effects of excess in snuffing, I have found all the symptoms of dyspepsia produced by it, and particularly pains of the stomach, occurring every day. The dependence of these upon the use of snuff became very evident from hence, that

upon an accidental interruption of snuffing for some days these pains did not occur, but upon a return to snuffing the pains also recurred; and this alternation of pains of the stomach and of snuffing having occurred again, the snuff was entirely laid aside, and the pains did not occur for many months after, nor, so far as I know, for the rest of life.

A special effect of snuffing is its exciting a considerable discharge of mucus from the nose; and there have been several instances of headachs, toothachs, and ophthalmias relieved by this means: and this is to be particularly remarked, that when this discharge of mucus is considerable, the ceasing or suppression of it, by abstaining from snuff, is ready to occasion the very disorders of headach, toothach, and ophthalmia, which it had formerly relieved.

Another effect of snuffing to be taken notice of is, that as a part of the snuff is often carried back into the fauces, so a part of this is often carried down into the stomach, and then more certainly produces the dyspeptic symptoms mentioned. These are the considerations that relate to snuffing, and some of them will readily apply to the other modes of using this drug.

Smoking, when first practised, shows very strongly the narcotic, vomiting, and even purging powers of tobacco, and it is very often useful as an anodyne; but by repetition these effects disappear, or only show themselves when the quantity smoked is beyond what habit had before admitted of; and even in persons much accustomed to it, it may be carried so far as to prove a mortal poison. From much smoking all the same effects may arise which we said might arise from excess in snuffing.

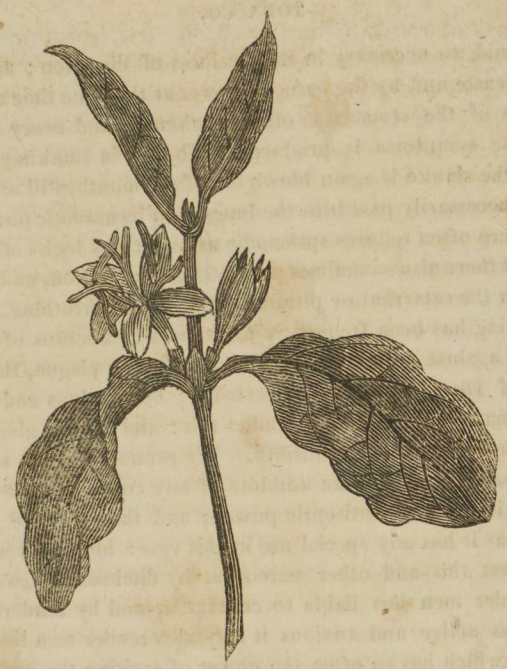
With respect to the evacuation of mucus which is produced by snuffing, there are analogous effects produced by smoking, which commonly stimulates the mucous follicles of the mouth and fauces, and particularly the excretories of the salivary glands. By the evacuation from both sources, with the concurrence of the narcotic power, the toothach is often greatly relieved by it; but we have not found the smoking relieve headachs and ophthalmias so much as snuffing often does. Sometimes smoking dries the mouth and fauces, and occasions a demand for drink; but, as commonly the stimulus it applies to the mucous follicles and salivary glands draws forth their liquids, it occasions on the other hand a frequent spitting.

So far as this is of the proper saliva, it occasions a waste of

that liquid so necessary in the business of digestion; and both by this waste and by the narcotic power at the same time applied, the tone of the stomach is often weakened, and every kind of dyspeptic symptoms is produced. Though in smoking a great part of the smoke is again blown out of the mouth, still a part of it must necessarily pass into the lungs, and its narcotic power applied there often relieves spasmodic asthma; and by its stimulant power it there also sometimes promotes expectoration, and proves useful in the catarrhal or pituitous difficulty of breathing.

Smoking has been frequently mentioned as a means of guarding men against contagion. In the case of the plague, the testimony of Diemerbroek is very strong; but Rivinus and others give us many facts which contradict this: and Chenot gives a remarkable instance of its inutility. We cannot, indeed, suppose that tobacco contains an antidote of any contagion, or that in general it has any antiseptic power; and therefore we cannot allow that it has any special use in this case: but it is very probable that this and other narcotics, by diminishing sensibility, may render men less liable to contagion, and by rendering the mind less active and anxious it may also render men less liable to fear, which has so often the power of exciting the activity of the contagion. The antiloimic powers of tobacco are therefore on the same footing with those of wine, brandy, and opium.

The third mode of using tobacco is that of *chewing* it, when it shows its narcotic qualities as strongly as in any other way of applying it; though the nauseous taste of it commonly prevents its being carried far in the first practice. When the practice, however, is continued, as it is very difficult to avoid some part of it dissolved in the saliva from going down into the stomach, so this, with the nausea excited by the taste, makes vomiting more readily occasioned by this than the other modes of applying it. They are the strong, and even disagreeable impressions repeated, that give the most durable and tenacious habits, and therefore the chewing of tobacco is apt to become one of these; and it is therefore in this way that it is ready to be carried to the greatest excess, and to show all the effects of the frequent and large use of narcotics. As it commonly produces a considerable evacuation from the mouth and fauces, so it is the most powerful in relieving the rheumatic affection of toothach. This practice is also the occasion of the greatest waste of saliva; and the effects of this in weakening digestion, and perhaps from thence especially, its noted effect of producing *emaciation*, may appear.



COFFEE TREE.

COFFEA ARABICA.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* funnel-shaped: *Stamina* above the tube: *Berry* beneath, two-seeded: *Seed* with an aril.

Spec. Char. *Flowers* five-cleft, two-seeded.

DESCRIPTION.

This tree rises to about twelve feet in height. The leaves are pointed, waved, opposite, three or four inches in length, on very short footstalks. Flowers white, axillary, sessile, two or three together. Calyx very small. Corolla funnel-shaped, cut into five segments. Tube long, narrow. Fruit a round fleshy red berry, containing two seeds, invested by a cartilaginous arillus.

HISTORY.

The coffee tree is a native of Arabia, and was first noticed by Rauwolfius in 1573, but first regularly described by Alpinus

in 1591. It was cultivated by bishop Compton in 1696, and is now common in the stoves of this country. The earliest account we have of coffee is taken from an Arabian manuscript in the king of France's library, No. 944, and is as follows:—

Schehabeddin Ben, an Arabian author of the ninth century of the Hegira, or fifteenth of the Christians, attributes to Gemaleddin, mufti of Aden, a city of Arabia Felix, who was nearly his cotemporary, the first introduction into that country of drinking coffee. He tells us, that Gemaleddin, having occasion to travel into Persia, during his abode there saw some of his countrymen drinking coffee, which at that time he did not much attend to; but on his return to Aden, finding himself indisposed, and remembering that he had seen his countrymen drinking coffee in Persia, in hopes of receiving some benefit from it, he determined to try it on himself; and, after making the experiment, not only recovered his health, but perceived other useful qualities in that liquor; such as relieving the head-ach, enlivening the spirits, and, without prejudice to the constitution, preventing drowsiness. This last quality he resolved to turn to the advantage of his profession: he took it himself, and recommended it to the dervises, or religious Mahometans, to enable them to pass the night in prayer, and other exercises of their religion, with greater zeal and attention. The example and authority of the mufti gave reputation to coffee. Soon men of letters, and persons belonging to the law, adopted the use of it. These were followed by the tradesmen and artisans that were under the necessity of working in the night, and such as were obliged to travel late after sun-set. At length the custom became general in Aden; and it was not only drunk in the night by those who were desirous of being kept awake, but in the day for the sake of its other agreeable qualities.

The Arabian author adds, that they found themselves so well by drinking coffee, that they entirely left off the use of an infusion of a herb called in their language *cat*, which possibly might be tea, though the Arabian author gives us no particular reason to think so.

Before this time coffee was scarce known in Persia, and very little used in Arabia, where the tree grew; but, according to Schehabeddin, it had been drunk in Æthiopia from time immemorial.

Coffee being thus received at Aden, where it has continued

in use ever since without interruption, passed by degrees to many neighbouring towns; and not long after reached Mecca, where it was introduced, as at Aden, by the dervises, and for the same purposes of religion.

The inhabitants of Mecca were at last so fond of this liquor, that, without regarding the intention of the religious and other studious persons, they at length drank it publicly in coffee-houses, where they assembled in crowds to pass the time agreeably, making that the pretence: here they played at chess, and such other kind of games, and that even for money. In these houses they amused themselves likewise with singing, dancing, and music, contrary to the manners of the rigid Mahometans, which afterwards was the occasion of some disturbances. From hence the custom extended itself to many other towns of Arabia, and particularly to Medina, and then to Grand Cairo in Egypt, where the dervises of the province of Yemen, who lived in a district by themselves, drank coffee the nights they intended to spend in devotion. They kept it in a large red earthen vessel, and received it respectfully from the hand of their superior, who poured it out into cups for them himself. He was soon imitated by many devout people of Cairo, and their example followed by the studious; and afterwards by so many people, that coffee became as common a drink in that great city, as at Aden, Mecca, and Medina, and other cities of Arabia.

But at length the rigid Mahometans began to disapprove the use of coffee, as occasioning frequent disorders, and too nearly resembling wine in its effects, the drinking of which is contrary to the tenets of their religion. Government was therefore obliged to interfere, and at times to restrain the use of it. However, it had become so universally liked, that it was found afterwards necessary to take off all restraint for the future.

Coffee continued its progress through Syria, and was received at Damascus and Aleppo without opposition; and in the year 1554, under the reign of the great Soliman, one hundred years after its introduction by the mufti of Aden, it became known to the inhabitants of Constantinople; when two private persons, whose names were Schems and Hekin, the one coming from Damascus and the other from Aleppo, each opened a coffee-house in Constantinople, and sold coffee publicly in rooms fitted up in an elegant manner; which were presently frequented by men of learning, and particularly poets and other persons, who

came to amuse themselves with a game of chess or draughts, or to make acquaintance, and pass their time agreeably at a small expense.

These houses and assemblies insensibly became so much in vogue, that they were frequented by people of all professions, and even by the officers of the seraglio, the pachas, and persons of the first rank about the court. However, when they seemed to be the most firmly established, the imans, or officers of the mosques, complained loudly of their being deserted, while the coffee-houses were full of company. The dervises and the religious orders murmured, and the preachers declaimed against them, asserting that it was a less sin to go to a brothel than to a coffee-house.

After much wrangling, the devotees united their interests to obtain an authentic condemnation of coffee, and determined to present to the mufti a petition for that purpose; in which they advanced, that roasted coffee was a kind of coal, and that what had any relation to coal was forbid by law. They desired him to determine on this matter according to the duty of his office.

The chief of the law, without entering much into the question, gave such a decision as they wished for, and pronounced that the drinking of coffee was contrary to the law of Mahomet.

So respectable is the authority of the mufti, that nobody dared to find fault with his sentence. Immediately all the coffee-houses were shut, and the officers of the police were commanded to prevent any one from drinking coffee. However, the habit was become so strong, and the use of it so generally agreeable, that the people continued, notwithstanding all prohibitions, to drink it in their own houses. The officers of the police, seeing they could not suppress the use of it, allowed of the selling it on paying a tax, and of the drinking it, provided it was not done openly; so that it was drunk in particular places with the doors shut, or in the back room of some of the shopkeepers' houses.

Under colour of this, coffee-houses by little and little were re-established; and a new mufti, less scrupulous and more enlightened than his predecessor, having declared publicly that coffee had no relation to coal, and that the infusion of it was not contrary to the law of Mahomet, the number of coffee-houses became greater than before. After this declaration, the

religious orders, the preachers, the lawyers, and even the mufti himself, drank coffee; and their example was followed universally by the court and city.

The grand viziers, having possessed themselves of a special authority over the houses in which it was permitted to be drunk publicly, took advantage of this opportunity of raising a considerable tax on the licenses they granted for that purpose, obliging each master of a coffee-house to pay a sequin per day, limiting, however, the price at an asper a dish*.

Thus far the Arabian manuscript in the king of France's library, as translated by Mr. Galand; who proceeds to inform us of the occasion of a total suppression of public coffee-houses during the war in Candia, when the Ottoman affairs were in a critical situation.

The liberty which the politicians who frequented these houses took, in speaking too freely of public affairs, was carried to that length, that the grand vizier Kupruli, father of the two famous brothers of the same name, who afterwards succeeded him, suppressed them all, during the minority of Mahomet the Fourth, with a resolution hereditary in his family, without regarding the loss of so considerable a revenue, of which he reaped the advantage himself. Before he came to that determination, he visited, incognito, the several coffee-houses, where he observed sensible grave persons discoursing seriously of the affairs of the empire, blaming administration, and deciding with confidence on the most important concerns. He had before been in the taverns, where he only met with gay young fellows, mostly soldiers, who were diverting themselves with singing, or talking of nothing but gallantry and feats of war. These he took no further notice of.

After the shutting up of the coffee-houses no less coffee was drunk, for it was carried about in large copper vessels, with fire under them, through the great streets and markets. This was only done at Constantinople; for in all other towns of the empire, and even in the smallest villages, the coffee-houses continued open as before.

* The Turkish sequin (according to Chambers) is of the value of about nine shillings sterling; and the asper is a very small silver coin, of the value of something more than an English halfpenny. The present value is nearly seven shillings; that is, two shillings and threepence three-farthings for a dollar, or eighty aspers; consequently three aspers are worth something more than a penny sterling, but they are generally reckoned at a halfpenny each. Two hundred and forty-three aspers go to a sequin.

Notwithstanding this precaution of suppressing the public meetings at coffee-houses, the consumption of coffee increased; for there was no house or family, rich or poor, Turk or Jew, Greek or Armenian, who are very numerous in that city, where it was not drunk at least twice a day, and many people drank it oftener, for it became a custom in every house to offer it to all visitors, and it was reckoned an incivility to refuse it; so that many people drank twenty dishes a day, and that without any inconvenience, which is supposed by this author an extraordinary advantage: and another great use of coffee, according to him, is its uniting men in society in stricter ties of amity than any other liquor; and he observes, that such protestations of friendship as are made at such times, are far more to be depended upon than when the mind is intoxicated with inebriating liquors. He computes that as much is spent in private families in the article of coffee at Constantinople as in wine at Paris; and relates that it is customary there to ask for money to drink coffee, as in Europe for money to drink your health in wine or beer.

Another curious particular we find mentioned here is, that the neglecting to supply a wife with coffee is reckoned among the legal causes of a divorce.

The Turks drink their coffee very hot and strong, and without sugar. Now and then they put in, when it is boiling, a clove or two bruised, according to the quantity; or a little of the *semen badian*, called starry aniseed, or some of the lesser cardamums, or a drop of essence of amber.

It is not easy to determine at what time, or upon what occasion, the use of coffee passed from Constantinople to the western parts of Europe. It is however likely that the Venetians, upon account of the proximity of their dominions, and their great trade to the Levant, were the first acquainted with it; which appears from part of a letter written by Peter della Valle, a Venetian, in 1615, from Constantinople, in which he tells his friend, that upon his return he should bring with him some coffee, which he believed was a thing unknown in his country.

Mr. Galand tells us he was informed by Mr. de la Croix, the king's interpreter, that Mr. Thevenot, who had travelled through the East, at his return in 1657, brought with him to Paris some coffee for his own use, and often treated his friends with it,

amongst which number Mr. de la Croix was one; and that from that time he had continued to drink it, being supplied by some Armenians who settled at Paris, and by degrees brought it into reputation in that city.

It was known some years sooner at Marseilles; for in 1644 some gentlemen, who accompanied Mr. de la Haye to Constantinople, brought back with them on their return, not only some coffee, but the proper vessels and apparatus for making and drinking it, which were particularly magnificent, and very different from what are now used amongst us. However, until the year 1660 coffee was drunk only by such as had been accustomed to it in the Levant, and their friends: but that year some bales were imported from Egypt, which gave a great number of persons an opportunity of trying it, and contributed very much to bringing it into general use; and in 1671 certain private persons at Marseilles determined for the first time to open a coffee-house in the neighbourhood of the Exchange, which succeeded extremely well: people met there to smoke, talk of business, and divert themselves with play; it was soon crowded, particularly by the Turkey merchants, and traders to the Levant. These places were found very convenient for discoursing on, and settling matters relative to, commerce; and shortly after the number of coffee-houses increased amazingly: notwithstanding which there was not less drunk in private houses, but a much greater quantity, so that it became universally in use at Marseilles and in the neighbouring cities.

Before the year 1669 coffee had not been seen at Paris, except at Mr. Thevenot's, and some of his friends; nor scarce heard of but from the account of travellers. That year was distinguished by the arrival of Soliman Aga, ambassador from sultan Mahomet the Fourth. This must be looked upon as the true period of the introduction of coffee into Paris; for that minister and his retinue brought a considerable quantity with them, which they presented to so many persons of the court and city, that many became accustomed to drink it, with the addition of a little sugar; and some, who had found benefit by it, did not choose to be without it. The ambassador staid at Paris from July 1669 to May 1670, which was a sufficient time to establish the custom he had introduced.

Two years afterwards an Armenian, of the name of Pascal, set up a coffee-house, but, meeting with little encouragement,

left Paris and came to London; he was succeeded by other Armenians and Persians, but not with much success, for want of address and proper places to dispose of it, genteel people not caring to be seen in those places where it was sold. However, not long after, when some Frenchmen had fitted up for the purpose spacious apartments in an elegant manner, ornamented with tapestry, large looking-glasses, pictures, and magnificent lustres, and began to sell coffee, with tea, chocolate, and other refreshments, they soon became frequented by people of fashion and men of letters, so that in a short time the number in Paris increased to three hundred.

For this account of the introduction of the use of coffee into Paris, we are indebted to La Roque's Voyage into Arabia Felix. We now come to trace its first appearance in London.

It appears from Anderson's Chronological History of Commerce, that the use of coffee was introduced into London some years earlier than into Paris; for in 1652 one Mr. Edwards, a Turkey merchant, brought home with him a Greek servant, whose name was Pasqua, who understood the roasting and making of coffee, till then unknown in England. This servant was the *first* who sold coffee, and kept a house for that purpose in George-yard, Lombard-street.

The first mention of coffee in our statute books is anno 1660 (12 Car. II. cap. 24.), when a duty of fourpence was laid upon every gallon of coffee made and sold, to be paid by the maker.

The statute of the 15 Car. II. cap. xi. § 15. ann. 1663, directs, that all coffee-houses should be licensed at the general quarter sessions of the peace for the county within which they are to be kept.

In 1675 king Charles issued a proclamation to shut up the coffee-houses, but in a few days suspended that proclamation by a second. They were charged with being seminaries of sedition *.

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* "This proclamation was issued about a month after the king had dined with the corporation of London, at Guildhall, on their lord mayor's day, October 29, 1675. At this feast the king afforded the citizens abundant matter for animadversion, in which they indulged themselves so much to his dissatisfaction, and that of his cabal ministry, that a proclamation was issued, December 20, for shutting up and suppressing all coffee-houses; 'because in such houses, and by occasion of the meeting of disaffected persons in them, divers false, malicious, and scandalous reports were devised and read abroad, to the defamation of his majesty's government,

The first European author who has made any mention of coffee is Rauwolfius, who was in the Levant in 1573; but the first who has particularly described it is Prosper Alpinus, in his History of the Ægyptian Plants, published at Venice in 1591, whose description we have in Parkinson's Theatre of Plants, p. 1622, chap. lxxix. as follows:—

Arbor Bon, cum fructu suo Buna, the Turks berry drink. Alpinus, in his book of Ægyptian plants, gives us the description of this tree, which he says he saw in the garden of a captain of the janissaries, which was brought out of Arabia Felix, and there planted, as a rarity never seen growing in those places before. The tree, saith Alpinus, is somewhat like the euonymus, or spindle-tree, but the leaves of it were thicker, harder, and greener, and always abiding on the tree.* The fruit is called *buna*, and is somewhat bigger than a hazel-nut, and longer; round also, and pointed at one end; furrowed likewise on both sides, yet on one side more conspicuous than the other, that it might be parted into two; in each side whereof lieth a small oblong white kernel, flat on that side they join together, covered with a yellowish skin, of an acid taste, and somewhat bitter, and contained in a thin shell* of a darkish ash colour. With these berries, in Arabia and Ægypt, and other parts of the Turkish dominions, they generally make a decoction or drink, which is in the stead of wine to them, and commonly sold in their tap-houses or taverns, called by the name of *caova*. Paludamus says *choava*, and Rauwolfius *chauke*. This drink has many good physical properties: it strengthens a weak stomach, helping digestion, and the tumours and obstructions of the liver and spleen, being drunk fasting for some time together. It is held in great estimation among the Ægyptian and Arabian women, in common feminine cases, in which they find it does them eminent service.

Lord chancellor Bacon likewise makes mention of it in 1624: He says, that the Turks have a drink called coffee, made with boiling water, of a berry reduced into powder, which makes the water as black as soot, and is of a pungent and aromatic smell, and is drunk warm.

The celebrated John Ray, in his History of Plants, published in 1690, speaking of it as a drink very much in use, says, that this tree grows only within the tropics, and supposes that the Arabs destroy the vegetable quality of the seeds, in order to confine among themselves the great share of wealth, which is brought thither from the whole world for this commodity: from whence he observes, that this part of Arabia might be truly styled the most happy, and that it was almost incredible how many millions of bushels were exported from thence into Turkey, Barbary, and Europe. He says, he was astonished that one particular nation should possess so great a treasure, and that within the narrow limits of one province; and that he wondered that the neighbouring nations did not contrive to bring away some of the sound seeds or living plants, in order to share in the advantages of so lucrative a trade.

We now come to show by what means this valuable tree was first introduced into Europe, and from thence into America.

The first account of this tree being brought into Europe we have from Boerhaave, in his Index of the Leyden Garden, part ii. p. 217, which is as follows: "Nicholas Witsen, burgomaster of Amsterdam, and governor of the East India company, by his letters often advised and desired Van Hoorn, governor of Batavia, to procure from Mocha, in Arabia Felix, some berries of the coffee tree, to be sown at Batavia; which he having accordingly done, and by that means, about the year 1690, raised many plants from seeds, he sent one over to governor Witsen, who immediately presented it to the garden at Amsterdam, of which he was the founder and supporter: it there bore fruit, which in a short time produced many young plants from

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and to the disturbance of the quiet and peace of the realm.' The opinions of the judges were taken on this great point of stopping people's tongues; when they sagely resolved, 'that retailing of coffee and tea might be an innocent trade; but as it was used to nourish sedition, spread lies, and scandalize great men, it might also be a common nuisance.' On a petition of the merchants and retailers of coffee and tea, permission was granted to keep open the coffee-houses until the 24th of June following, under an admonition that the masters of them should prevent all scandalous papers, books, and libels from being read in them, and hinder every person from declaring, uttering, or divulging all manner of false and scandalous reports against government, or the ministers thereof. Thus by a refinement of policy, adds Noorthouck in his History of London, the simple manufacturer of a dish of coffee or tea was constituted licenser of books, corrector of manners, and arbiter of the truth or falsehood of political intelligence, over every company he entertained!"

* This description is evidently taken from a dried berry, and not from the ripe fruit.

the seeds." Boerhaave then concludes, that the merit of introducing this rare tree into Europe is due to the care and liberality of Witsen alone.

In the year 1714 the magistrates of Amsterdam, in order to pay a particular compliment to Lewis XIV. king of France, presented to him an elegant plant of this rare tree, carefully and judiciously packed up to go by water, and defended from the weather by a curious machine covered with glass. The plant was about five feet high, and an inch in diameter in the stem, and was in full foliage, with both green and ripe fruit. It was viewed in the river, with great attention and curiosity, by several members of the Academy of Sciences, and was afterwards conducted to the royal garden at Marly, under the care of M. de Jussieu, the king's professor of botany, who had the year before written a memoir, printed in the History of the Academy of Sciences of Paris in the year 1713, describing the characters of this genus, together with an elegant figure of it, taken from a smaller plant, which he had received that year from M. Pancras, burgomaster of Amsterdam, and director of the botanical garden there.

In 1718 the Dutch colony at Surinam began first to plant coffee; and in 1722 M. de la Motte Aigron, governor of Cayenne, having business at Surinam, contrived, by an artifice, to bring away a plant from thence, which in the year 1725 had produced many thousands.

In 1727 the French, perceiving that this acquisition might be of great advantage in their other colonies, conveyed to Martinico some of the plants; from whence it most probably spread to the neighbouring islands; for in the year 1732 it was cultivated in Jamaica, and an act passed to encourage its growth in that island. Thus was laid the foundation of a most extensive and beneficial trade to the European settlements in the West Indies.

An Account of the Culture of the Coffee Tree in Arabia Felix: extracted from La Roque's Voyage.

He relates, that the coffee tree is there raised from seed, which they sow in nurseries, and plant them out as they have occasion. They choose for their plantations a moist, shady situation, on some eminence, or at the foot of the mountains, and take great care to conduct from the mountains little rills of water, in small gutters or channels, to the roots of the trees; for it is absolutely

necessary they should be constantly watered, in order to produce and ripen the fruit. For that purpose, when they remove or transplant the tree, they make a trench three feet wide, and five feet deep, which they line or cover with stones, that the water may the more readily sink deep into the earth with which the trench is filled, in order to preserve the moisture from evaporating. When they observe that there is a good deal of fruit upon the tree, and that it is nearly ripe, they turn off the water from the roots, to lessen that succulency in the fruit which too much moisture would occasion.

In places much exposed to the south they plant their coffee trees in regular lines, sheltered by a kind of poplar tree, which extends its branches on every side to a great distance, and affords a very thick shade. Without such precaution they suppose the excessive heat of the sun would parch and dry the blossoms so that they would not be succeeded by any fruit.

In situations not so much exposed to the sun, this defence is not necessary. When they perceive the fruit come to maturity, they spread cloths under the trees, which they shake, and the ripe fruit drops readily*; they afterwards spread the berries upon mats, and expose them to the sun until they are perfectly dry; after which they break the husk with large heavy rollers, made either of wood or stone. When the coffee is thus cleared of its husk it is again dried in the sun; for, unless it is thoroughly dried, there is danger of its heating on board the ship. It is then winnowed with a large fan; for if it is not well cleaned and dried it sells for a much lower price.

The Manner of preparing and drinking Coffee among the Arabians. From the same Author.

The Arabians, when they take their coffee off the fire, immediately wrap the vessel in a wet cloth, which fines the liquor instantly, makes it cream at top, and occasions a more pungent

* This circumstance deserves the particular attention of the West India planter, who, I am told, is accustomed to gather his coffee as soon as it turns red, before it changes to a dark red colour, and begins to shrivel; whereas the Arabians wait for those tokens which show the full maturity of the fruit. Mr. Miller in his Dictionary mentions, that in some stoves in England coffee is raised of a better quality than the best Mocha coffee that can be procured in this country; which may likewise be owing to gathering the fruit only when it is thoroughly ripe.

steam, which they take great pleasure in snuffing up as the coffee is pouring into the cups. They, like all other nations of the East, drink their coffee without sugar.

People of the first fashion use nothing but sultana coffee, which is prepared in the following manner: They bruise the outward husk, or dried pulp, and put it into an iron or earthen pan, which is placed upon a charcoal fire; they then keep stirring it to and fro until it becomes a little brown, but not of so deep a colour as common coffee; they then throw it into boiling water, adding at least the fourth part of the inward husks, which is then boiled all together in the manner of other coffee: the colour of this liquor has some resemblance to the best English beer. The husks must be kept in a very dry place, and packed up very close, for the least humidity spoils the flavour. They esteem the liquor prepared in this manner preferable to any other. The French, when they were at the court of the king of Yemen, saw no other coffee drunk, and they found the flavour of it very delicate and agreeable; there was no occasion to use sugar, as it had no bitter taste to correct. In all probability this sultana coffee can only be made where the tree grows; for as the husks have little substance, if they are too much dried, in order to send them to other countries, the agreeable flavour they had when fresh is greatly impaired.

It may perhaps be worth while for our West India planters to make a trial of drying the outward and inner husk of coffee separately, in the manner the Chinese do their tea, upon a broad shallow iron pan, turned upwards at the brim, placed upon a stove. They should be kept continually turning, to prevent burning; and when they are become too hot to be handled, they should be taken off with a kind of shovel, and laid upon a mat on a low table, and shifted about until they cool, fanning them at the same time to disperse the moisture. The pan must be frequently wiped, and kept clean from any clammy matter sticking to it, and the process repeated while any moisture is perceived. They must afterwards be packed close in dry jars, canisters, or chests lined with lead, such as the tea is sent over in. It will be proper to turn out these husks, after they have lain some days, to examine whether they are thoroughly dry; and if the least damp is felt, it will be necessary to dry them still more, otherwise they will become mouldy, and lose their flavour: for it appears from the Arabian account that they are not acquainted

with a proper method of drying these husks, and packing them so as to be conveyed to any considerable distance, without prejudicing this agreeable flavour.

The Chinese are very careful not to leave their tea-leaves in heaps before they are dried, which would occasion them to heat and spoil: they likewise gather no more at a time than they can dry in less than twenty-four hours, as they find, when they have been kept longer, they turn black. These observations may possibly be of some use to those who may be induced to attempt drying the pulp of the berry for the purpose of making sultana coffee.

If the duties and excise upon coffee were lessened, the consumption would be increased; taste would grow more refined, the best would be sought for, and the price would be in proportion. The present duties are almost prohibitory. It may be worth one's while to view the effects of these high duties in a political light—I mean in respect to this article.

For a century to come, it is perhaps more than probable that the people of this country will, for one meal at least, make use of either tea, coffee, or chocolate; I speak of the generality. Tea at present takes the lead; whence it comes, its history, properties, and uses, will be so fully explained, that I shall say nothing here upon the subject*.

It is a question often proposed to physicians, Which is best, tea or coffee? The solution of this point would perhaps be a difficult one. We neither find the Chinese or Turks subjected to any such discriminating effects, as enable the faculty to say, with precision, that one is more injurious than the other. For my own part, I leave it to the experience of individuals. To some people coffee is disagreeable; they charge it with producing nervous complaints. Tea is not without similar accusations. It seems as if the human frame was, however, so happily constructed, that it is less in the power of such things to affect it than might at first sight be imagined. The animal powers are apparently such as can convert almost opposite principles to its benefit, if used in any degree of moderation: some drink coffee almost to excess, and condemn tea as injurious; and so coffee is treated in its

* See our account of the Tea Plant.

turn. These are proofs, however, how few people are capable of making proper inferences from experiment.

I think neither coffee nor tea afford any very material support, that is, contain very little nutriment: they are rather the vehicles of nourishment than nutritious of themselves: the most that can be expected from them in general is, that they are grateful, and very little injurious. Custom has adopted them both; and it becomes us to make them as useful to ourselves, and as subservient to public good, as may be in our power. China, that supplies us with tea, is remote; the navigation long and dangerous; the climate not always favourable to our seamen: indeed, all long voyages are injurious, and the hotter the climate the worse. As a nation, a commercial nation, whose accommodations depend on this useful race of people, we cannot, as friends to humanity, wish to promote the consumption of those articles which are introduced at so great an expense of useful lives. Coffee from our own plantations is in this respect much preferable to tea; the voyage is shorter, the risk is less. Supposing, then, that tea and coffee are alike in respect to real usefulness; that one is not inferior to the other in respect to the health of the consumers: suppose, likewise, that the disadvantage with respect to the lives of the seamen were equal, which however is not the case, there is one material difference that ought to turn the scale in favour of the more general use of coffee—it is raised by our fellow-subjects, and paid for with our manufactures. Tea, on the contrary, is paid for principally with money. The quantity of British goods which the Chinese take from us is inconsiderable when compared with the quantity we pay for in bullion.

The Chinese take from us every article which they can turn to national benefit, and whatever enables them to improve their manufactures. Besides raw silk, and a few other articles of some little use in our own manufactures, most other things imported from thence we can do without, especially if the consumption of our coffee was encouraged. Were the duties and excise upon coffee, for instance, reduced to a quarter part, more than double the quantity would be consumed: was the consumption greater, the planters would find it their interest to cultivate the trees with more attention: increased demand would increase the price; and as more came to market, the best would sell dearer

than an inferior kind. These must be the certain effects of increased demand.

There is another consideration of some moment likewise; which is, that the cultivation of coffee might be carried on in such manner as the lesser planters might subsist by it, and a few similar articles, cotton particularly, with little stock, and without much expense for negroes. No little planter can make sugar to advantage; the expense of negroes, cattle, mills, and other requisites of a sugar plantation, are beyond his reach: if he has any landed property, by one means or another he is often obliged to sell it to his richer neighbour, and to remove to some other country less unfavourable to contracted circumstances. Thus the islands are gradually thinned of the white inhabitants; they become less able to quell the insurrections of their negroes, or to oppose any hostile invasion.

Lessening the duty would increase the consumption, prevent smuggling, enable many whites to gain a comfortable support, and to pay for our manufactures. As it is raised by our own people, imported with less risk of seamen's health and lives, in a political light it must certainly deserve the deliberate attention of the legislature.

How to make Coffee.

Pour a pint of boiling water on an ounce of coffee; let it boil five or six minutes, then pour out a cupful two or three times, and return it again; put two or three isinglass chips into it, or a lump or two of fine sugar; boil it five minutes longer, set the pot by the fire to keep hot for ten minutes, and you will have your coffee of a beautiful clearness. Some like a small bit of vanilla. Cream should always be served with coffee, and either pounded sugar-candy or fine Lisbon sugar. For foreigners, or those who like it extremely strong, make only eight dishes from three ounces. If not fresh roasted, lay it before a fire till hot and dry; or put the smallest bit of fresh butter into a preserving-pan; when hot throw the coffee into it, and toss it about till it be freshened.

MEDICAL USE.

It may require a good deal of sagacity to determine how far the French custom of drinking coffee immediately after dinner is right; but I think it can admit of no dispute, whether a dish of coffee or a bottle of wine may then be less prejudicial to health.

I think, however, it is less injurious to drink coffee immediately after dinner than later in the evening; and at least for one very obvious reason:

Coffee most certainly promotes watchfulness; or, in other words, it suspends the inclination to sleep. To those therefore who wish not to be too subject to this inclination, coffee is undoubtedly preferable to wine, or perhaps to any other liquor we know.

The instances of persons to whom coffee has this antisoporific effect are very numerous, and the instances are almost as numerous of such to whom wine has the opposite effect.

To attribute the liveliness of the French, after their repasts, to this beverage, would be highly hypothetical: but I think it must be acknowledged, that after a full meal, perhaps of gross animal food, even a mere diluent is much preferable to wine; which, whilst it gives a temporary flow of animal spirits, rather opposes that necessary assimilation which nature aims at in the offices of digestion.

Was coffee substituted instead of the bottle immediately after dinner, it seems more than probable that many advantages would flow from it, both to the health of individuals, and general œconomy; and it seems not improbable that by deferring coffee or tea so late as is usually practised, we interrupt digestion, and add a new load of matter to that already in the stomach, which, after a full meal, is not a matter of indifference.

Persons afflicted with asthma have found great relief, and even a cure, by drinking very strong coffee, and those of a phlegmatic habit would do well to take it for breakfast. It is rather of a drying nature, and with corpulent habits it would be adviseable to take it for breakfast.

Coffee Milk.

Boil a dessert-spoonful of ground coffee in about a pint of milk a quarter of an hour; then put into it a shaving or two of isinglass, and clear it; let it boil a few minutes, and set it on the side of the fire to fine. This is a very fine breakfast, and should be sweetened with real Lisbon sugar.

Those of a spare habit, and disposed towards affections of the lungs, would do well to make this their breakfast.

TEA.

THEA.

Class V. Pentandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* six- or nine-petalled: *Calyx* five- or six-leaved: *Capsule* three-celled.

Spec. Char. *Leaves* elliptic-oblong.

DESCRIPTION.

It is generally believed, although there are many varieties, that the tea is but of one species, and that the differences are the production of soil, climate, and a particular mode of preparation. The two obvious distinctions of green and black teas naturally suggested the idea that there were two distinct species of this plant; and I believe it was sir John Hill who first attempted at the distinction, remarking that the green tea (*Thea viridis*) had six petals, whereas the black tea (*Thea bohea*) has nine; and it must be allowed that the two plants differ greatly in the forma-

tion of the leaves, obvious even to the most inattentive observer. The green tea plant has leaves of a larger size than the other, elliptic, sharp-pointed; whereas the black is a perfect oval, rounder at the apex, and the first is of an apple-green colour, whereas the black is of a dark olive; the former has a very wrinkled leaf, the latter perfectly smooth: the textures also differ; the green has a much looser texture, hence the one is somewhat transparent, the other opake; the green spreads out, waving like the leaves of corn, and distant, whereas the black are numerous, stiff, and pressed close to the stem: the edges also differ; the green is unequally toothed, teeth large, it may be said to be jagged; the black is simply serrated, the teeth even, and minute. No two plants, therefore, can be more readily discriminated than the black and green, although the fructification so greatly resembles in both that these are usually not to be distinguished; for the number of petals in both kinds is very subject to vary. The leaf of the bohea tea, by the firmness of its texture, approaches very near to the Japan rose (*Camellia Japonica*), only these are half the size; and it seems closely allied to this plant, so that gardeners also notice this resemblance: and it is curious that the early plants imported to Europe as the true tree, sold by the Chinese, were actually the *Camellia Japonica* *; and I think it more than probable that the leaves of this plant are used with the green tea, which may render that kind of tea so stimulating; and it is allowed on all hands that this plant is intermixed with the green tea, and may produce much pernicious effect upon some peculiar habits. But I mention this only as my own imperfect conjecture; for, swayed by the general, and now universally received, opinion †, I am not indeed allowed to

* Linnæus endeavoured for several years to procure the tea tree for the botanic garden at Upsal, but by a variety of accidents they were all destroyed on the passage. At length, in the year 1755, Lagerstroem, a director of the Swedish East India company, brought him two plants, which he himself obtained in China; but they proved to be the camellia, "the crafty Chinese," says professor Martyn, "having plucked away the flowers." In 1769 Linnæus received another plant from France; but that also proved to be the camellia, which is now common enough in our green-houses, as being a very ornamental plant. But in October 1763 Linnæus first received the true tea plant from Gustavus Ekeberg, captain of a Swedish Indiaman, who raised it from seed on the voyage. The first that flowered in England was at Sion, the seat of the duke of Northumberland.—Martyn.

† Professor Martyn, Dr. Lettsom, Des Fontaines, &c., with all the travellers into China, are agreed, that there is no just distinction into the two species here attempted to be formed; yet, if any one will take the pains to examine the green and black teas imported, the distinctions of the leaves of the two kinds here given may be noticed, and the greater thinness and length, &c. of the green leaf will be readily observed. Is is said that, the green tea being once in fashion in England, the East India company wished to have chiefly this sort, and it was returned in answer by the Chinese, "that to extirpate their bohea tea trees, and plant in their room green tea trees, would take up several years to accomplish, nor had they, at that time, green tea enough to supply our market." Hence persons were engaged to write down the green tea, and turn the tide of public opinion in favour of the black tea, which is now almost universally drunk in England, or mixed with only a sprinkling of green.

consider the black and green tea (*Thea nigra et viridis*) as forming distinct teas of themselves.

The following is the description usually given of the tea tree, without attending in the least to the two kinds discriminated by Linnæus.

Tea is a branchy evergreen shrub, which, according to Kempfer and Thunberg, grows to the height of four or five feet, though other travellers assert that it rises sometimes to thirty.

Its leaves are alternate, hard, oval, or elliptic; of a somewhat shining green colour, entire near the base, but serrated in the rest of their length, and supported on a short and half-cylindric footstalk. The buds are acute, and accompanied with a husk, which detaches itself, and drops off at the period of its development.

The flowers grow singly, or sometimes, but more rarely, two-and-two, in the eyes of the leaves, on short and somewhat thick pedicles.

The calyx is small, persistent, and has five obtuse divisions.

The corolla, for the most part, has six white petals, round and open: the two exterior ones are smaller and unequal. Its breadth is about the third of an inch.

The stamina, which are more than two hundred in number, are shorter than the corolla, and attached under the germen. Each anther has two cells.

The germen, which is of a rounded triangular form, and surmounted by a style divided into three filiform stigmata, becomes a capsule with three round monospermous cells united at the base, and opening longitudinally on one side only.

The seeds are spherical, internally angular, of a rather large size, covered with a thin shining pellicle, a little hard, and of a maroon colour. The kernel is oily, and of a bitter and disagreeable taste, which produces salivation, and even occasions nausea.

It is cultivated every where, from Canton to Pekin; where the winter, according to the observations of the missionaries, is more severe than at Paris. It would, no doubt, be possible, says the learned Des Fontaines, to propagate this valuable plant in France, if one could procure a sufficient number of individuals to make experiments, by cultivating it in different soils and under different climates. This object deserves the attention of government, as the consumption of tea is immense, and as the quantity imported every year amounts to a considerable sum, for which Europe is rendered tributary to China. The tea seeds brought to us from that country become rancid, and spoil at sea; so that scarcely one of a thousand produces plants. It would therefore be necessary that persons who go to China should procure them exceedingly fresh, and take care to sow them, before they sail, in boxes filled with light earth: they would then spring up on the passage. Nothing would be necessary but to water them from time to time, and to preserve them from the sea water: the young plants might then arrive in safety.

These are the chief distinctions of teas in Europe:

Green Teas.

1. *Bing*, (so called from the man who first made that tea,) imperial, or bloom tea, with a large loose leaf, of a light green colour, and a faint delicate smell. The leaves are not rolled*.

2. *Hy-tiann, hikiong, hayssuen,* or *hee-chun*—known to us by the name of hyson tea†, named from an Indian merchant, who

* The *bing* grows four days' journey from the hyson country. The leaves are long and thin, those of *singlo* short and thick.—Asiatic Researches.

† Of hyson there are two gatherings, and each gathering is distinguished into two or more sorts; but as great care is taken in gathering it, 60 catties (a catty is 21 ounces and a third, or three catties are four pounds) from one pecul, when only 45 catties can be chosen from the singlo.

Hyson-skin, as it is called, has its name from being compared to the skin or peel to the hyson tea, a sort of cover to it, and consequently not so good. It consists of the largest leaves, flat, unhandsome, bad coloured. This is called in London bloom tea.

first sold tea to an European, his tea being asked for ever after. The leaves are closely curled and small, of a green colour verging towards blue. Another hyson tea, with narrow short leaves, is called *hyson-utchin.* There is also a green tea named *gobé*, with long narrow leaves, strongly rolled.

3. *Song-lo* or *Singlo*, which name it receives, like several others, from the place where it is cultivated*.

Bohea Teas.

1. *Soo-chuen, sut-chong, sou-chong,* or *su-chong,* called by the Chinese *saa-tyang,* and *saet-chaon* or *sy-tyann,* is a superior kind of *cong-fou* tea. It imparts a yellowish green colour by infusion, and has its name from a place or province in China †.

Gobe, *gomi*, and *ootseen*, are also leaves picked from the hyson leaves. Those called *gomi* are small, and very much twisted, so that they appear like bits of wire. The *ootseen* are more like little balls.—Asiatic Researches.

* *Tunkey* singlo tea is the best, which is owing to the soil: it grows near the hyson country. Ordinary singlo tea is neither so often tatched (tatching is drying in a flat iron pan heated), or picked, as the above.

Singlo and hyson teas are cured in the following manner: When the leaves are gathered, they are directly tatched, and then very much rubbed by men's hands to roll them, after which they are spread to divide them, for the leaves in rolling are apt to stick together; they are then tatched very dry, and afterwards spread on tables to be picked; this is done by girls or women, who, according to their skill, can pick from one to four catties each day. Then they are tatched again, and afterwards again, and after that tossed in flat baskets to clear them from dust; they are then again spread on tables and picked, and then tatched for a fourth time, and laid in parcels, which parcels are again tatched by ten catties at a time, and when done put hot into baskets for the purpose, where they are kept till it suits the owner to pack them in chests or tubs, before which the tea is again tatched, and then put hot into the chests or tubs, and pressed in them by hand. When the tea is hot it does not break, which it is apt to do when it is cold. Singlo tea being more dusty than hyson tea, it is twice tossed in baskets, hyson only once.

It appears that it is necessary to tatch these teas whenever they contract any moisture; so that if the seller is obliged to keep his tea any time, especially in damp weather, he must tatch it to give it a crispness before he can sell it.

It is to be observed, that the quantity of leaves tatched increases with the times of tatching; at first only half or three quarters of a catty of leaves are put into the tatches.—Asiatic Researches.

† Souchong is made from the leaves of trees three years old, and where

Padre-souchong, called so because the priests drink it, has a finer taste and smell. The leaves are large and yellowish, not rolled up, and packed in papers of half a pound each. It is generally conveyed by caravans into Russia. Without much care it will be injured at sea. It is rarely to be met with in England.

2. *Cam-ho* or *Soum-lo*, called after the name of the place where it is gathered. A fragrant tea, with a violet smell. Its infusion is pale.

3. *Congo-fou*, *congo* or *bongo-fo*. This has a larger leaf than the following, and the infusion is a little deeper coloured. It resembles the common bohea in the colour of the leaf *.

There is a sort called *lin-kisam*, with narrow rough leaves. It is seldom used alone, but mixed with other kinds: by adding it to congo, the Chinese sometimes make a kind of *pekoe* tea†.

4. *Pekao*, *pecko*, or *pekoe*, by the Chinese called *back-ho* or *pack-ho*. It is known by having the appearance of small white flowers intermixed with it ‡.

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the soil is very good: of older, when not so good, congo is made. The leaves of older trees make bohea. The tea trees last many years. When tea trees grow old and die, that is, when the bodies of the trees fail, the roots produce new sprouts, which make peko.—Asiatic Researches.

* *Congo*, says Chow-qua, a Chinese, is tatched twice, as is *souchong*; but Youngshaw says, souchong and congo are not tatched, but only fired two or three times. The latter is most probable, but yet the former may be true; for as tatching seems to give the green colour to the leaves of the tea trees, so we may observe something of that greenness in the leaves of congo and souchong teas. Youngshaw further says, that the leaves of souchong, congo, hyson, and fine singlo trees, are beat with flat sticks or bamboos, after they have been withered by the sun or air, and have acquired toughness enough to keep them from breaking, to force out of them a raw or harsh smell.—Asiatic Researches.

† *Lintsessin* seems to be made from very young leaves rolled up, and stalks of the tree: the leaves are gathered before they are full blown. This tea is never tatched, but only fired. Were the leaves suffered to remain on the trees until they were blown, they might be cured as peko; if longer, as congo and bohea. This tea is in no esteem with the Chinese; it is only cured to please the sight; the leaves are gathered too young to have any flavour.—Asiatic Researches.

‡ *Peko*, a tea which we import for Sweden and Denmark, is made from the leaves of trees three years old, and from the tenderest of them, gathered just after they have been in bloom, when the small leaves that grow between the two first that have appeared, and which altogether make a sprig,

5. Common bohea, or black tea, called *moji* or *mo-ee* by the Chinese, consists of leaves of one colour, a brownish green *.

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are downy and white, and resemble young hair or down. Trees of four, five, and six years old may still make peko; but after that they degenerate into bohea if they grow on the plains, and into congo if they grow on the hills.—Asiatic Researches.

* Chow-qua says, that bohea may be cured as hyson, and hyson as bohea, and so of all other sorts; but that experience has shown, the teas are best cured as suits the qualities they have from the soils where they grow; so that bohea will make bad hyson, and hyson, though very dear in the country where it grows, bad bohea. However, in the province of Tokyen, which is called the Bohea province, there has lately been some tea made after the hyson manner, which has been sold at Canton as such.

The bohea country, in the province of Tokyen, is very hilly, and since some years greatly enlarged; the length of it is four or five days' journey, or as much again as it formerly was. The extent of the soil that produces the best bohea tea is not more than 40 li, or about 12 miles; in circumference it is from 100 to 120 li. Not only the hills in this country are planted with tea trees, but the valleys also; the hills, however, are reckoned to produce the best tea; on them grow congo, peko, and souchong; in the valleys or flat parts of the country, bohea. As to the true souchong, the whole place does not yield three peculs; Youngshaw says not more than three catties. The value of it on the spot is 1½ or two tales the catty, about ten or twelve shillings the pound. What is sold to Europeans for souchong is only the first sort of congo, and the congo they buy is only the first sort of bohea. Upon a hill planted with tea trees, one only shall produce leaves good enough to be called souchong, and of those only the best and youngest are taken; the others make congo of the several sorts, and bohea.

There are four or five gatherings of bohea tea in the year, according to the demand there is for it; but three, or at most four gatherings are reckoned proper; the others only hurt the next year's crop. Of souchong there can be but one gathering, viz. of the first and youngest leaves; all others make inferior tea.

The first gathering is called *tow-tchuue*, the second *eurl*, or *gee-tchuue*, the third *san-tchuue*. If the first leaves are not gathered they grow large and rank, and are not supplied by the second leaves, which only come in their room or place, and so on.

The first gathering is reckoned fat or oily, the second less so, the third hardly at all so, yet the leaves look young. The first gathering is from about the middle of April to the end of May; the second from about the middle of June to the middle of July; the third from about the beginning of August to the latter end of September. Tea is never gathered in winter. The first gathering or leaf, when brought to Canton, commonly stands the merchants in

11½ tales (a tale is six shillings and eightpence) the pecul.
the 2d 11 or less.
the 3d 9 ——

The best is named *tao-kyonn*. An inferior kind is called *An-kai*, from a place of that name.

Besides these, tea, both bohea and green, is sometimes imported in balls, from two ounces to the size of a nutmeg and of peas. The Chinese call it *pencul-tcha*. The smallest in this form is well known under the name of gunpowder tea*.

The method of curing bohea tea of these three growths is, according to Chow-qua, thus:

When the leaves are gathered they are put into large flat baskets to dry, and these are put on shelves or planks, in the air or wind, or in the sun, if not too intense, from morning until noon, at which time the leaves begin to throw out a smell; then they are tatched. This is done by throwing each time about half a catty of leaves into the tatche, and stirring them quick with the hand twice, the tatche being very hot, and then taking them out with a small short broom, if the hand is not sufficient. When taken out, the leaves are again put into the large flat baskets, and there rubbed by men's hands to roll them; after which they are tatched in larger quantities, and over a cooler or slower fire, and then put into baskets over a charcoal fire, as is practised on some occasions at Canton. When the tea is fired enough, which a person of skill directs, it is spread on a table, and picked and separated from the too large leaves, yellow leaves, unrolled, broken, or bad leaves.

Youngshaw says bohea tea is gathered, sunned in baskets, rolled with the hand, and then tatched; which completes it.

Another says it is gathered, then put in sieves or baskets, about a catty in each, and these are put in the air till the leaves wither or give, after which they are put into a close place out of the air, to prevent their growing red, until the evening, or for some hours: the smell then comes out of them. They are after this tatched a little, then rolled, and then tatched again; and about half a catty is tatched at one time.—Asiatic Researches.

* There are also other teas.

Ho-ping tea is so called from the country where it grows, which is twelve easy days' journey from Canton. This tea is cured after the manner of bohea, only in a more careless or slovenly way, on account of its little value, and with wood instead of charcoal fire, which is not so proper, and adds to the naturally bad smell the tea has from the soil where it grows.

Leoo-ching or (*Lootsia*), the name of a place eight days' journey from Canton: it may produce about 1000 peculs of tea in a year. This tea is cured as bohea, or as green, as the market requires, but is most commonly made to imitate singlo, which suits it best.

Honan tea grows opposite to Canton; it is cured in April or May for the Canton market, that is, for the use of the inhabitants of Canton, especially the women, and not for foreigners. There is but little of it, about 200 peculs. The worst sort of it remains flat, and looks yellow: it is tatched once to dry it, but not rolled, and is worth three candarines the catty. The best sort is tatched once, and rolled with the hand, and tatched again; it is worth twelve candarines the catty. These teas are not, like the bohea, after they are tatched put over a charcoal fire. The water of Honan tea is reddish.

Ankoy tea is so called from the country that produces it, which is about twenty-four days' journey from Canton. When gathered the leaves are put into flat baskets to dry like the bohea; they are then tatched, and afterwards rubbed with hands and feet to roll them, then put in the sun to dry, and sold for three or four candarines the catty. If this tea is intended for Europeans it is packed in large baskets, like bohea baskets, and those are heated by a charcoal fire in a hot-house, as is often practised in Canton. Bohea tea is sometimes sent to Ankoy, to be there mixed with that country tea, and then forwarded to Canton.

The worst sort of Ankoy is not tatched; but Ankoy congo, as it is called, is cured with care, like good bohea or congo: this sort is generally packed in small chests. There is also Ankoy-peka; but the smell of all these teas is much inferior to those of the Bohea country. However, Ankoy-congo of the first sort is generally dearer at Canton than the inferior growths of bohea.

As tatching the tea makes it sweat, as the Chinese term it, or throw out an oil, the tatche in time becomes dirty, and must be washed.

If bohea is tatched only twice, it will be reckoned slovenly cured, and the water of the tea will not be green, but yellow; so that fine bohea tea must be cured as congo; the coarse is not so much regarded.—Asiatic Researches.

The manner of gathering and preparing the leaves, as practised in Japan, is fully described by Kempfer, an author on whom we may safely depend; and, as far as our information reaches, his account is in great measure the method used by the Chinese.

The leaves are gathered carefully one by one, and each person is able thus to collect from four to ten or fifteen pounds in one day. The first gathering commences about the end of our February or beginning of March, when the leaves are young and tender: they are called *ficki tsjaa*, or powdered tea, because they are pulverised and sipped in hot water: they are disposed of to princes and rich people only; and hence this kind is called imperial tea.

A similar sort is called *udsi tsjaa*, and *tacke sacki tsjaa*, from the place where it grows. Peculiar care and nicety are observed in gathering these leaves.

The second collection is made at the end of March or beginning of April. This is called *tootsjaa*, or Chinese tea, because it is infused and drunk after the Chinese manner.

The third gathering is made in June, when the leaves are full

grown. This is called *ban tsjaa*; it is the coarsest, and is chiefly consumed by the lower class of people. By sorting these, several other varieties are produced.

The most esteemed tea of Japan, according to Kempfer, grows in the environs of the small town of Udsi, situated in the neighbourhood of the sea. In that district is a celebrated mountain, which is entirely employed for the cultivation of that used by the emperor. This mountain, which has a beautiful and picturesque appearance, is surrounded by a broad ditch, to prevent men and animals from having any access to it. The plantations are laid out by the line, arranged in a manner exceedingly agreeable to the eye, and the shrubs are washed and cleaned every day. While the leaves are collecting, the men employed in that operation bathe two or three times every day, and wear gloves when they pick the leaves, to prevent them from being dirtied. When the leaves have been torrified and properly prepared, they are shut up in vessels of great value, and conveyed with much pomp to the emperor's palace.

The Japanese ascribe to tea a miraculous origin. Darma, a very religious prince, and third son of an Indian king, named Kosjusvo, landed in China, they say, in the year 510 of the Christian æra. He employed all his care and thought to diffuse throughout the country a knowledge of God and religion; and, being desirous to excite men by his example, imposed on himself privations and mortifications of every kind; living in the open air, and devoting the days and nights to prayer and contemplation. After several years, however, being worn out with fatigue, he fell asleep against his will; and that he might faithfully observe his oath, which he thought he had violated, he cut off his eye-lids and threw them on the ground. Next day, having returned to the same spot, he found them changed into a shrub which the earth had never before produced. Having eaten some of the leaves of it, he found his spirits exhilarated, and his former vigour restored. He recommended this aliment to his disciples and followers. The reputation of tea increased, and after that time it continued to be generally used. Kempfer, in his *Amœnitates exoticæ*, gives the life with a portrait of this saint, so celebrated in China and Japan. There is seen, at the feet of Darma, a reed, which indicates that he had traversed the seas and rivers.

Whether the Chinese collect the tea precisely at the same seasons as in Japan, we are not well informed; but most probably the tea harvest is nearly at the same periods, the natives having frequent intercourse, and their commercial concerns with each other being very extensive.

The tea leaves should be dried as soon as possible after they are gathered. For this purpose public buildings are erected, containing from five to ten, and even twenty, small furnaces, about three feet high, each having at the top a large iron pan. There is also a long table covered with mats, on which the leaves are laid, and rolled by women who sit round it. The iron pan being heated to a certain degree by a fire made in the furnace beneath, a few pounds of the leaves are put upon the pan, and frequently turned and shifted by the hands till they become too hot to be endured; they are then thrown upon the mats to be rolled between the palms of the hands; after which they are cooled as speedily as possible. In order that all the moisture of the leaves may be completely dissipated, and their twisted form be better preserved, the above process is repeated several times with the same leaves, but less heat is employed than at first. The tea thus manufactured is afterwards sorted according to its kind or goodness. Some of the young tender leaves are never rolled, and these are immersed in hot water before they are dried.

After the tea has been kept for some months, it is taken out of the vessels in which it was stored, and dried again over a very gentle fire, that it may be deprived of any humidity which remained, or it might have since contracted.

The common tea is kept in earthen pots with narrow mouths; but the best sort, used by the emperor and nobility, is put into porcelane or china vessels. The coarsest tea is kept by the country people in straw baskets, made in the shape of barrels, which they place under the roofs of their houses, near the hole that lets out the smoke*.

Thunberg declares, that the older the leaves are, and the later in the season they are gathered, the greater is the abundance; but then the tea is so much the worse: the smaller leaves, and those which have just shot forth, furnish the finest and most valuable. Young shrubs always yield better tea than old ones;

* Kempf. amœn. & Jap. Thunb. Jap. Woodv. Letts. 29—35.

and some places produce it in greater perfection and more delicious than others *.

According to the accurate account of sir George Staunton, the largest and oldest leaves, which are the least esteemed, and destined for the use of the lowest classes of the people, are often exposed to sale with little previous manipulation, and still retaining that kind of vegetable taste which is common to most fresh plants, but which vanishes in a little time, whilst the more essential flavour, characteristic of each particular vegetable, remains long without diminution. But the young leaves undergo no inconsiderable preparation before they are delivered to the purchaser: every leaf passes through the fingers of a female, who rolls it up almost to the form it had assumed before it became expanded in the progress of its growth. It is afterwards placed upon thin plates of earthen-ware or iron, made much thinner than is executed by artists out of China. It is confidently said in the country, that no plates of copper † are ever employed for that purpose. Indeed, scarcely any utensil used in China is of that metal, the chief application of which is for coin. The earthen or iron plates are placed over a charcoal fire, which draws all remaining moisture from the leaves, rendering them dry and crisp. The colour and astringency of green tea is derived from the early period at which the leaves are plucked, and which, like unripe fruit, are generally green and acrid. For exportation, the tea, as is well known, is packed

* Travels, vol. iv. p. 42, 43, Engl. edit.

† This is a prevailing prejudice; and green tea is vulgarly supposed to acquire its colour by means of verdigris, as some pickles have their colour heightened by putting into the vinegar a copper halfpenny. But Kempfer positively says, that the tea is torrified on plates of iron. The writer of Lord Macartney's Voyage asserts the same thing; nor could I discover the smallest quantity of copper, which is easily detected by means of chemistry. Pigou, who writes on the tea tree in the Asiatic Annual Register, says, the Chinese all agree there is but one sort or species of the tea tree; and that the difference in tea arises from the soil and manner of curing. As the malt is either brown, producing our porter, or pale, forming our amber-coloured ale, from the manner of drying, so the tea is supposed to be made brown by a quick heat, and the green is produced by a slack heat, and more careful drying, which in consequence is obliged to be oftener repeated, the black teas being dried but twice, and the green as often as six or seven times. Some doubts about the two kinds of shrubs, or tea trees, making the distinctions, likewise are detailed in other places of this long article.

in large chests lined with very thin plates of lead; and it is pressed down into these chests by the naked feet of Chinese labourers *.

Chinese drawings, though somewhat rudely executed, exhibit a faithful picture of what they are intended to represent. From a set of these, giving the whole process of gathering and manufacturing the tree, we learn that the tree, or rather shrub, grows for the most part in hilly countries, often on their rocky summits and steep declivities. Accordingly, sir George Staunton informs us, that vast tracts of hilly land are planted with it, particularly in the province of Fo-chen: and chevalier Thunberg says, that he met with it frequently in Japan, both on the borders of cultivated lands, and upon such mountains and downs as did not well answer the trouble of cultivation. It appears also from these drawings that the shrubs are not much taller than a man's middle: the gatherers are never represented climbing, they sometimes make use of hooked sticks, but these seem rather intended to draw the branches towards them, when they hang over places difficult of access. They pick the leaves first in a basket, which are soon after gathered into different sorts, and cured by drying them in iron kettles placed upon a range of stoves, like those in a chemist's laboratory, after which the women chiefly work, and curl the leaves one by one. They likewise dry it by spreading it abroad in shallow baskets in the sun; and, by means of sieves, separate the larger from the smaller leaves, and these again from the dust. The tea is then packed up in chests for the market.

The Chinese put the finer kinds of tea into conic vessels, like sugar loaves, made of tutanag, tin, or lead, covering them with a neat packing of bamboo. The common tea is put into baskets, out of which it is emptied, and packed in boxes or chests, as soon as it is sold to the Europeans †.

It is not known what arts are used in China to give a variety of colour and flavour to their teas, which cannot all be satisfactorily accounted for from soil, situation, and the different seasons at which the leaves are gathered. In Japan the produce

* Embassy, vol. ii. p. 465. The practice of employing iron or earthen plates to dry the tea upon is, perhaps, a mistake, as the process is called tatching, and a tatche exactly resembles our pitch kettle.

† Lettsom, p. 36.

is chiefly consumed within the country; whereas in China, the exportation we know is very considerable, and the temptation great to exercise the arts of sophistication, in which it is notorious the Chinese are not deficient.

In the Chinese drawings above mentioned, there are figures of several persons apparently separating the different kinds of tea, and drying it in the sun, with several baskets standing near them filled with a white substance, and in considerable quantity. To what use this may be applied is uncertain, as well as what the substance is; yet there is little doubt that it is used in the manufacture of tea, because the Chinese do not introduce any thing into their pieces, but what relates in some respect to the subject.

We are better acquainted with a vegetable substance which is employed in giving a flavour to tea. This is the *Olea fragrans*, the flowers of which are frequently to be met with in teas exported from China. The plant itself is now not unfrequent in our stoves*.

The flowers also of the *Camellia Sesanqua* and of the *Arabian Jasmin* are sometimes mixed among the teas, for the same purpose of increasing their fragrance. The Chinese call the former Chawhaw, or flower of tea. It is cultivated in vast abundance in China, not so much for this purpose, as for its nut, which yields an esculent oil, equal to the best which comes from Florence. The tea plant is particularly valuable from the facility of its culture on the sides and very tops of mountains, in situations fit for little else †.

We are not certain what motive induced the natives of China and Japan first to use an infusion of tea; but it is highly probable that it was in order to correct the water, which is said to be brackish and ill-tasted in many parts of those countries ‡.

Sir George Staunton says, that persons of rank in China are so careful about the quality of the water intended for their own consumption, that they seldom drink any without its being distilled; and every Chinese infuses tea or some other vegetable supposed to be salubrious, in the water which he uses. Like beer in England, tea is sold in public-houses in every town; also by the side of public roads, and on the banks of rivers and ca-

* Lettsom, p. 43. † Staunton's Embassy, vol. ii. p. 467.
‡ Lettsom, p. 19.

nals, both in China and Japan; nor is it unusual for the burthened and wearied traveller to lay down his load, refresh himself with a cup of warm tea, and then pursue his journey*.

These qualities of taking off the ill taste of water, and refreshing after fatigue, have been experienced in other countries besides China and Japan. Thus Kalm says, "If tea be useful, it must be so in travelling through a desert country, where wine or other liquors cannot conveniently be carried, and where the water is generally unfit for use, as being full of insects. In such cases it is very pleasant when boiled, and tea is infused in it; nay, I cannot sufficiently describe the fine taste it has in such circumstances. It relieves a weary traveller more than can be imagined, as I have experienced with many others who have travelled through the forests of America: on such journeys tea is found to be almost as necessary as victuals." Forster, the translator, adds, that on his travels through the desert plains beyond the river Volga, he has had several opportunities of making the same observations on tea, and that every traveller in the same circumstances will readily allow them to be very just †. Captain Forrest, in his Voyage to New Guinea, relates several instances, wherein the sailors experienced the exhilarating effects of this infusion ‡. Other travellers have borne testimony to this pleasant and salutary effect of tea. And persons, after violent exercise, or coming off a journey much fatigued, and affected with a sense of general uneasiness, attended with thirst and great heat, by drinking a few cups of warm tea commonly experience immediate refreshment.

Neither the Chinese, nor the natives of Japan, ever use tea before it has been kept at least a year; because when fresh it is said to prove narcotic, and to disorder the senses. The Chinese pour hot water on the tea, and draw off the infusion in the same manner as is now practised in Europe; but they drink it without sugar or milk. The Japanese reduce the tea to a fine powder, by grinding the leaves in a hand-mill; the cups are filled with hot water, and as much of this powder as might lie on the point of a moderate-sized knife is put into each cup, and stirred about till the liquor foams, and it is sipped while warm. Ac-

* Embassy, vol. ii. p. 66, 69.
† Travels in North America, vol. ii. p. 304, Engl. ed.
‡ Lettsom, p. 20.

cording to Du Halde, this method is also used in some provinces of China.

The common people, who have a coarser tea, boil it for some time in water, and use the liquor for common drink. Early in the morning, the kettle filled with water is hung over the fire, and the tea is either put in enclosed in a bag, or by means of a basket pressed to the bottom of the vessel. The coarsest tea only is used in this manner, the qualities of which being more fixed, would probably not be so fully extracted by infusion.

VIRTUES.

Tea is indeed the common beverage of all the labouring people in China; and they are scarcely ever represented at work of any kind, but the tea-pot and tea-cup appear as their accompaniments: reapers, threshers, and all who work out of doors, as well as within, have these attendants*.

With respect to the qualities of tea, it appears that an infusion of green tea has the effect of raising the sensibility of the nerves, and the irritability of the muscles; and that it gives out in distillation an odorous water, which is powerfully narcotic.

That the recent plant contains such an odorous narcotic power, we might presume from the necessity which the Chinese find of drying it with much heat before it can be brought into use; and that even after such preparation they must abstain from the use of it for a year or more, that is, till its volatile parts are still further dissipated: and it is said, that unless they use this precaution, the tea in a more recent state manifestly shows strong narcotic powers. Even in this country the more odorous teas often show their powers in affecting the nerves of the stomach, and indeed of the whole system.

From these considerations it may fairly be concluded, that tea is to be considered as a narcotic and active substance; and that it is especially such in its most odorous state, and therefore less in the bohea than in the green tea, and the most so in the finer kinds of the latter.

Its effects however seem to be very different in different persons; and hence the contradictory accounts that are given of them. But if we consider the difference of constitution, which occasions some variation in the operating of the same medicine,

* Lettsom, p. 48.

and of which we have a remarkable proof in the operation of opium, we shall not be surprised at the different operations of tea.

It is not at the same time to be denied, that green tea may sometimes have good effects. It is very possible, that in certain persons, taken in moderate quantities, it may, like other narcotics, prove exhilarating, or, like them, have some effect in taking off irritability, or in quieting some irregularities of the nervous system.

As its bad effects* have been often imputed to the warm water

* Cullen, Mat. Med. vol. ii. 309. Woodville, vol. iv. 120. See Lettsom, p. 59, to the end.—The latter physician has scared the credulous respecting tea by the following very frightful narrative:—

"An eminent tea-broker" (Mr. Nash he means), "after having examined in one day upwards of one hundred chests of tea, only by smelling at them forcibly, in order to distinguish their respective qualities, was the next day seized with giddiness, head-ache, universal spasms, and loss of speech and memory. By proper assistance the symptoms abated, but he did not recover: for though his speech returned, and his memory in some degree, yet he continued, with unequal steps, gradually losing strength, till a paralysis ensued, then a more general one, and at length he died. Whether this was owing to effluvia of the tea may, perhaps, be doubted. Future accidents may possibly confirm the suspicion to be just, or otherwise."

Dr. Lettsom then relates: "An assistant to a tea-broker had frequently, for some weeks, complained of pain and giddiness of his head after examining and mixing different kinds of tea. The giddiness was sometimes so considerable as to render it necessary for a person to attend him, in order to prevent any injury he might suffer from falling, or other accident. He was bled in the arm freely, but without permanent relief; his complaint returned as soon as he was exposed to his usual employment. At length he was advised to be electrified, and the shocks were directed through his head. The next day his pain was diminished, but the day after closed the tragical scene. I saw him a few hours before he died; he was insensible; the use of his limbs almost lost, and he sunk very suddenly into a fatal apoplexy. Whether the effluvia of the tea, or electricity, was the cause of this event is doubtful. In either view the case is worthy of attention."

Anxious to ascertain this point as far as possible (for my grandmother, Mrs. Winstanley, at the age of near one hundred, was in the habit of taking very strong green tea, and would not allow any bad effects from tea, often being told it was a slow poison, of which slowness she was a tolerably good proof), I enquired of a gentleman who is smeller and taster to the East India Company of the teas at Canton, from whom I obtained the following information.

"My dear Sir *London, Sept.* 7, 1808.

"I had the pleasure to receive your letter of the 5th instant, and it always will afford me much satisfaction to be of the least service to you. You

that accompanies the tea, so there is no doubt that some of its good effects may also be ascribed to the same cause, and particularly its being so often grateful after a full meal.

After all, the infusion of tea, as it is commonly taken in England, with a competent quantity of cream or milk and sugar, cannot be very narcotic or sedative, especially as after a long voyage it

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know the confined state we are in during our stay either at Canton or Macao, and the difficulty there is to obtain any information relating to the manufactures and customs of the Chinese, which we can only get from the Hong merchants, none of whom I believe were ever in the tea country themselves, but derive all their information from their pursers, whom they annually send there to buy them tea. From what I could collect from them, I understand that the tree which produces the black and green tea is of the same species, but is cultivated and manufactured in different provinces. The manner of curing the black differs from that of the green; the former is not fired (or tatch'd, as the Chinese call it) so often as the latter, and I am pretty certain that the fine light green or blueish colour we observe the hyson, and other fine sorts of the green tea, to possess, is not natural, but a given colour, either by Prussian blue, or by some other article introduced among the leaves, at the time it is fired or tached, which is always with the hyson three times, and the common twankays and hyson skins twice, sometimes thrice. The blacks (bohea tea excepted) are also fired twice: besides both kinds, viz. blacks and greens, are a good deal exposed to the sun before and after their undergoing this process. The black teas are produced in the province of Fokein, and about twenty-four days journey from Canton; the greens are cultivated further off, from thirty to thirty-three days from Canton; the former I should think about 700 miles distant, and the latter near 1000 from Canton. The Chinese merchants call the former the Bohea Country, and the latter the Hyson Country. I understand the finest sorts of the blacks, viz. the Padra Scudry and Souchong and Pekoe, are produced from those trees that are cultivated on the higher land and hills; the trees that grow on the low grounds do not produce good tea. The first gathering of the leaves, which always comprises the finest tea, is in the month of April, or early in May; the second in June, or the beginning of July; and the third, which is the last gathering, is in August or the beginning of September. The curing of the green tea is a more expensive and longer process than the black, and it is always much later in the season before we get them at Canton than we do the black teas. The quantity fired at one time does not exceed two catties, which is put in a vessel made of iron, something in the form of pitch kettles on board of ships, or our saucepans; and these are called taches by the Chinese, and are fixed like our coppers in brick work in our kitchens; the person employed in firing keeps turning the tea with his hand for a certain time, a few minutes only, and then takes it out of the tach for a fresh supply; it is done very quick; I have seen this part of the process myself in the neighbourhood of Canton. The hyson and fine hyson skin and twankay leaves are twisted or rolled in the palm of the hand pre-

is kept some time in the East India company's warehouses: and the finer sorts of it are not so much in request as formerly. Nor can it be an unwholesome beverage for sedentary persons and such as live freely, provided it be not taken too hot, or in immoderate quantities, or without any solid food accompanying it. For the lower class of people, who generally live poorly, and procure little animal food, tea, conveying little or no nourishment.

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vious to their being fired; the blacks, I believe, do not undergo that process. In general, I think the leaves of the green teas are larger than the blacks. There are several sorts of tea in China, which have never been seen in Europe, and of such superlative quality, as to fetch amongst themselves the high prices of from eight to sixteen tales the catty. This account I had from a missionary, who was at Pekin sixteen years, and whom I saw about twelve months before I quitted China. I have seen one kind of this tea, the leaf of which is nearly white, but very different from the pekoe, which you know has a whitish appearance.—Notwithstanding so much has been said by various people of the unwholesome and very prejudicial effects arising from the use of tea, I am of opinion it is quite erroneous. I have now been in the habit of smelling and tasting teas for the last eighteen years, the last four of which I passed in China, and you know how much my time was employed for days, weeks, and months, examining teas in this manner every day; besides which I always breakfast on it, and drink it in the afternoon; and if the article possessed any pernicious qualities I should certainly have felt it long before this. It is, I think, the drinking it too hot which makes it prejudicial, if it be so at all. I always drink it warm, but not hot. The green tea is a stronger astringent than the black, but I think it quite as wholesome; as a proof of it, the Chinese themselves in the northern provinces of China and at Pekin drink nothing else but green tea. In the southern they drink wholly black.—If there are any other questions relating to the above subject you wish to know and I can answer, I shall have much pleasure in communicating it.

"E. LARKEN."

In addition to the above let me add the testimonies of Mr. Venn and Mr. Wright, who are smellers and tasters to the East India company of the teas which have been imported, and place marks on each chest of tea as good, very good, superlatively good, best, very best, extraordinary, fine, incomparable, the bloom, and so on in degrees of comparison, which we grammarians are unacquainted with, but which direct the purchase; and these gentlemen have been employed upwards of 40 years, sometimes in a morning tasting seventy cups, of all sorts, and after that smelling often from seven to eight hundred chests of tea, and these gentlemen never found any thing in teas at all prejudicial to their healths: the former asserts, that Dr. Lettsom's account of Mr. Nash's losing his life by smelling of teas is founded upon mistake; and Dr. L. promised him to alter the mis-statement.

is a bad succedaneum for beer; and a meal on it, including sugar and butter, is so expensive, they must forgo what is more necessary for their support, in order to enjoy it.

When the Chinese first began to make use of tea as a beverage, we are not able to say; but it is probable that the ill taste of the water in many parts of the empire would induce them to look out for some vegetable to correct it, soon after they arrived at a state of civilization. The earliest account that we have of it is from two Arabian travellers, who visited China about the year 850, and relate that the inhabitants of that empire had a medicinal beverage, named *chah* or *sah*, which was prepared by pouring boiling water on the dried leaves of a certain herb, which infusion was reckoned an efficacious remedy in various diseases*. From the great revenue which these travellers inform us was levied from the consumption of tea, it seems then to have been as universally the favourite beverage of the Chinese in the ninth century, as it is at present †.

Giovanni Botaro, an eminent Italian author, observes, that the Chinese have a herb, out of which they press a delicate juice, which serves them for drink instead of wine: it also preserves their health, and frees them from all those evils that the immoderate use of wine doth breed in us ‡.

About the year 1600, Texeia, a Spaniard, saw the dried leaves in Malacca, where he was informed that the Chinese prepared a drink from this vegetable: and in 1633 Olearius found this practice prevalent amongst the Persians, who procured the plant under the name of *cha orchia*, from China, by means of the Usbeck Tartars. In 1639, Stirkaw, the Russian ambassador at the court of the Mogul Chau Altyn, partook of the infusion of tea; and at his departure was offered a quantity of it, as a present for the Czar Michael Romanoff, which the ambassador refused, as being an article for which they had no use in Russia §.

Tea was not known in Europe as a beverage, before the commencement of the seventeenth century. Some Dutch adventurers

* Renaudot Anciennes Relations, Par. 1718, p. 31. Haller, Bibl. bot. i. 176. Lettsom, p. 21.

† Robertson's India, p. 96.

‡ Engl. Trans. 1530. Anderson's Commerce.

§ Lettsom, p. 20.

seeking, about that time, for such objects as might fetch a price in China, and hearing of the general usage there of a beverage from a plant of the country, bethought themselves of trying how far an European plant, of supposed great virtues, might also be relished by the Chinese, and thereby become a saleable commodity amongst them; and accordingly introduced to them the herb Sage, so much once extolled by the Salernian school of physic, as a powerful preservative of health; the Dutch accepting in return the Chinese Tea, which they brought to Europe. The European herb did not continue, long at least, in use in China; but the consumption of tea has been gradually increasing in Europe ever since*.

In 1641, Tulpius, a celebrated physician, and consul at Amsterdam, wrote in praise of the good qualities of tea. It is asserted that he did so by desire of the Dutch East India Company, who rewarded him with a considerable sum of money. In 1667, Jonquet, a French physician, extolled its virtues. In 1678, Bontetre, physician to the elector of Brandenburgh, who had acquired great reputation, bestowed high encomiums on its qualities, in a dissertation which he published on tea, coffee, and chocolate. This work was attended with great success, and contributed not a little to render the use of it more general; and before the end of the century the consumption of it was considerable.

The introduction of tea into England was about the year 1660, when the first mention of it was made in the statute-book, and a duty of fourpence a gallon laid on the liquor made and sold in coffee-houses.

A quantity of it being brought over from Holland in the year 1666 by lord Arlington and lord Ossory, tea soon came into request among people of fashion, and its use by degrees since that period has become general †. Hanway informs us, that at this time it sold for sixty shillings a pound ‡.

From these small beginnings we have seen the infusion of a leaf from the furthest extremity of the earth become in a manner a necessary of life, in several parts of Europe, and the passion for it descend from the most elevated to the lowest orders in society. In 1785 it was computed that the whole quantity of tea

* Staunton's Embassy, vol. i. p. 21. † Ibid.

‡ Journal, vol. ii. p. 21.

imported into Europe was about nineteen millions of pounds, of which it is conjectured that twelve millions were consumed in Great Britain and its dependencies*.

Sir George Staunton informs us, that the annual public sales of tea by our East India Company did not, in the beginning of the eighteenth century, much exceed fifty thousand pounds weight, independently of what little might be then perhaps clandestinely imported. The Company's annual sales now (the year 1797) approach to twenty millions of pounds; being an increase of four hundred fold in less than one hundred years, and answers to the rate of more than a pound each, in the course of the year, for the individuals of all ranks, sexes and ages, throughout the British dominions in Europe and America.

Since the year 1797, it is probable that the importation of tea has much increased, and that at least thirty millions of pounds are annually imported into Europe alone†.

Since the free use of tea, the stone has become a very rare disease in England‡.

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* Robertson's India, p. 252. † Embassy, vol. i. p. 22.

‡ In this one instance I have deviated from the regularity of system by making our account of Tea follow Coffee.

GREAT BROAD-LEAVED MULLEIN.

VERBASCUM THAPSUS.

Class V. Pentandria. *Order* I. Monogynia.

Essnt. Gen. Char. *Corolla* rotate, somewhat unequal: *Capsule* three-celled, two-valved.

Spec. Char. *Leaves* decurrent, on each side tomentose: *Stem* simple.

DESCRIPTION.

The stem rises two or three feet in height, and is irregularly adorned with leaves, which are large, without footstalks, at the base decurrent, oblong, pointed, indented at the margin, and covered on both sides with fine down, or hair. The flowers are

yellow, and clothe the extremity of the stem, and are produced in succession from the bottom. The calyx is cut into five acute segments, and is covered with down. The corolla is also cut into five segments, which are blunt, and somewhat unequal.

HISTORY.

It is a native of England, and usually grows on the declivity of ditches, producing a very grand appearance. Its remarkable woolliness is very attractive. The leaves have a bitterish sub-astringent taste, and a mucilaginous quality.

MEDICAL USE.

Catarrhs and diarrhœas are the complaints for which the Verbascum has been used. Dr. Home tried it in both diseases, but allows its virtue only in the latter disorder. He relates four cases in which the verbascum was given; and from which he concludes, "that it is useful in diminishing or stopping diarrhœas of an old standing, and often in easing the pains of the intestines. This arises from the emollient and gently astringent qualities of the plant. The decoction is made by boiling two ounces of the leaves in a quart of water for twenty minutes, and four ounces of this decoction is to be given every three hours.

STINKING GOOSE-FOOT,

OR

ORACH.

CHENOPODIUM FŒTIDUM.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Calyx* five-leaved, five-angled: *Corolla* none: *Seed* one, lenticular above.

Spec. Char. *Leaves* entire, rhomboideo-ovate: *Flowers* axillary, assembled.

DESCRIPTION.

The plant reaches near a foot. Leaves numerous, mealy, alternate, upon short footstalks. Flowers small, of a light green, and placed in clusters, like the flowers of spinach in the alæ of the leaves, terminal, inconspicuous. No seed-vessel.

HISTORY.

It is usually found about ruins; and flowers in August. In its recent state it has the offensive smell of putrid saltfish, which long remains on the hands.

MEDICAL USE.

Dr. Cullen says "that it has been frequently employed in hysterics and spasmodic complaints with advantage; not, however, so frequently as might be expected, as it is a plant, in its fresh state, not always ready at hand, and in its dry state it loses all its sensible qualities. It can only be employed therefore in its recent state, and the most convenient formula is that of a conserve; and as it is not always easy to reconcile our patients to it even in that state, it is not employed so often as I could wish." —Mat. Med. vol. ii. p. 365.

Boerhaave gives a like commendation of the plant, and adds, that the leaves applied externally hasten suppuration: "Folia emolliunt, dolores sopiunt, et suppurationem maturescunt."

COMMON ELM.

ULMUS CAMPESTRIS.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Calyx* five-cleft: *Corolla* none: *Berry* dry, compresso-membranaceous.

Spec. Char. *Leaves* twice-serrate, unequal at the base.

DESCRIPTION.

It becomes a large tree, covered with a rough crinkled bark. The leaves are ovate, rough, doubly serrate, and alternate upon short peduncles. The flower precedes the leaves. The seed is round, but somewhat compressed.

HISTORY.

This tree is common in Middlesex, but is said not to be found north of Stamford.

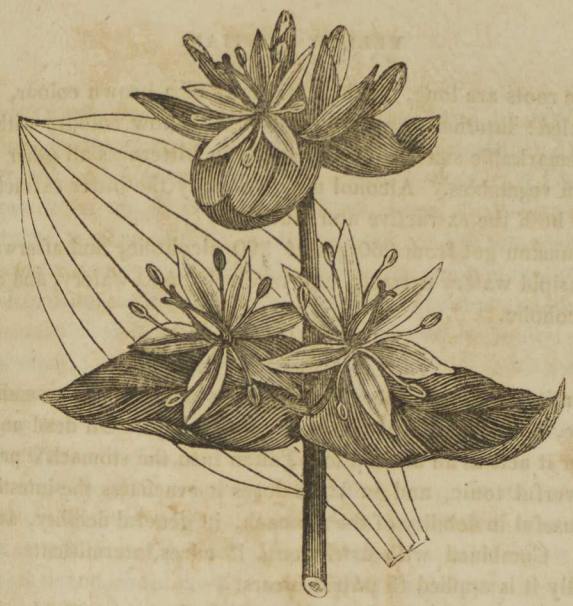
MEDICAL VIRTUE.

The inner tough bark abounds with a slimy juice, of a bitterish taste, and was employed by Fallopius to unite wounds by the first intention. But it is now chiefly employed as a *ptisan* for

scorbutic affections, and for the cure of herpes and lepra. Dr. Lysons mentions five cases of inveterate eruptions, both dry and humid, or those forming incrustations, which were successfully treated by a decoction of this bark, prepared from four ounces of it taken fresh, and boiled in two quarts of water to one: of this the patients were directed to drink a pint twice a day. The body was kept open, and a few grains of nitre were added to the *ptisan*. It is admitted by the authors of the Edinburgh Pharmacopœia, who do not deny its efficacy in leprosy; but, as they observe, such a remedy requires a very patient trial!

To receive benefit from the elm bark it must be continued for some months; and Dr. Lettsom has favoured us with a very striking case of leprosy (in Med. Trans. vol. ii. p. 203), where a cure was effected after every other remedy had failed. A yet more remarkable instance of its efficacy in leprosy is related by Banace (in Journ. de Paris 1783, n. 255), who proposes the use of this remedy in old ulcers, cancerous and scrophulous affections, scald head, scurvy, &c. These recommendations merit attention. It has been found of use in some nephritic cases.

Coffins are composed of this wood, as being very difficult to corrupt. These will be kept at a distance, in proportion to our proper knowledge of plants.



YELLOW GENTIAN.

GENTIANA LUTEA.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Corolla* monopetalous: *Capsule* two-valved, one-celled: *Receptacles* two, longitudinal.

Spec. Char. *Corolla* deeply five-cleft, rotate, verticillate: *Calyx* a spatha.

DESCRIPTION.

The plant rises two or three feet in height. The stem is strong, smooth, erect. The leaves which arise from the lower part of the stem are spear-shaped, large, ribbed, those from the upper part more ovate, smooth, sessile. The flowers are large, yellow, produced in whorls, and stand on a footstalk. The calyx is a spatha, which drops. The corolla is divided into five or six segments. The pistil has no style, but two reflexed stigmata. The capsule is conical.

HISTORY.

Gentian is a perennial plant, which grows upon the Alps, Pyrennees, Appenines, and other mountainous situations in the temperate parts of Europe.

The roots are long, thick, externally of a brown colour, and wrinkled: internally spongy, and of a yellow colour, without any remarkable smell, but surpassing in bitterness all other European vegetables. Alcohol dissolves only the bitter extractive, water both the extractive and mucilage.

Neumann got from 960 grains 390 alcoholic, and afterwards 210 insipid watery extract; and inversely, 540 watery, and only 20 alcoholic.

MEDICAL USE.

Gentian possesses the general virtues of bitters in an eminent degree, and it is totally devoid of astringency. On dead animal matter it acts as an antiseptic. Taken into the stomach it proves a powerful tonic, and in large doses it evacuates the intestines. It is useful in debility of the stomach, in general debility, and in gout. Combined with astringents it cures intermittents. Externally it is applied to putrid ulcers.

The root, which is the only medicinal part in use, has little or no smell, and to the taste manifests great bitterness, a quality which is extracted by aqueous and spirituous menstrua, though not in so great a degree by water as by spirit. As an intense bitter it is admitted to be not only a tonic, but a fine stomachic, and when joined with equal parts of tormentil root, or galls, says Cullen, it never fails curing an intermittent equally with the Peruvian bark. It was given before the discovery of this bark in that disease. "Hæc cortice Peruvianâ nondum inventâ habebatur pro ultimo remedio in quartanâ."—Boerhaave. Again: "Radix ad unciam semes in vino decocta vase clauso conducit ad omnes febres intermittentes." It is strongly recommended in the green sickness:—"Infusum hujus plantæ in chlorosi virginibus pallidis, et stomacho confortando conducit." In hysterics: "In passionibus hystericis est planta optima." Stoppage of the months: "In mensibus obstructis est optima planta." In obstructions of every kind: "In obstructionibus pertinacissimis conducit, uti lienis et hepatis." A want of bile: "Succus in hac plantâ est amarior quam absynthio, et ullâ aliâ amarâ herbâ, hinc bilis defectui supplet." Against worms: "Lumbricos necat, quibus amarore suo adversa sunt et ratione virtutis alcalinæ, contrariantur acidis putridisque, in quibus vermes nidulantur." In dropsy: "Optima in hydrope." In gout: "Est planta primaria contra podagram." In hydrophobia: "In hydrophobiâ specifice laudatur." Against the bites of venomous animals: "Morsibus venenatorum animalium succurrit." Against gangrene: "Gangrænæ resistit." Sordid ulcers: "Chirurgi radicem lente siccatam et in scrobem rasam ulceribus sordidis aspergunt et depurant." In the fistula: "Vel sub specie turundæ fistulis intrudunt ad fistulas dilatandas, quod fit, quia laxior radicis substantia à susceptis ex fistula humoribus intumescens eam sensim dilatat, et quia sal acre ulceris fistulosi callum exedit vel absumit." So far the great Boerhaave; and the famous Haller recommends it also in asthma. It is more antiseptic than bark, or keeps meat longer from corruption, yet it does not turn of a black colour with iron.

As far as regards my own experience I have found it a most useful remedy, and until the time arrives that we shall have found out a specific for each disease, or specifics, we must follow what has been denominated the Brunonian practice, namely, acting on the constitution, which of herself removes a long catalogue of disease, thus acting on disease through her powers, which often require to be assisted. The nicety in physic is to know the nature of each disease, attend to the constitution, and not to do too much or too little.

PREPARATIONS.

Extract of Gentian. (Extractum Gentianæ Luteæ. E.)

Take of gentian root, any quantity:

Having cut and bruised it, pour upon it eight times its quantity of distilled water. Boil to the consumption of one half of the liquor, and strain it by strong expression. Evaporate the decoction immediately, to the consistence of thick honey, in a bath of water saturated with muriate of soda. Of the extract from ten grains to two scruples are given.

Compound Infusion of Gentian, or Bitter Infusion. (Infusum Gentianæ compositum, vulgo Infusum Amarum. E.)

Take of gentian root, cut into pieces, half an ounce;
——— dried peel of Seville oranges, bruised, one drachm;
——— coriander seeds, bruised, half a drachm;
——— diluted alcohol, four ounces;
——— water, one pound:

First pour on the alcohol, and three hours thereafter add the water; then macerate without heat for twelve hours, and strain.

The dose is two or three drachms, at twelve o'clock, seven in the evening, and bed-time, every day, to improve digestion.

COMPOUND INFUSION OF GENTIAN. (Infusum Gentianæ compositum. L.)

Take of the root of gentian, cut into pieces, one drachm;
——— dried orange peel, a drachm and a half;
——— fresh outer rind of lemons, half an ounce;
——— boiling water, twelve ounces, by measure:
Macerate for an hour, and strain.

Dub.

Take of bruised gentian root, two drachms;
——— fresh outer rind of lemons, half an ounce;
——— dried peel of Seville oranges, a drachm and a half;
——— proof spirit, four ounces by measure;
——— boiling water, twelve ounces by measure:
First pour on the spirit, and after three hours the water: lastly, after macerating two hours, filter.

These formulæ are all essentially the same. The Edinburgh college employ the largest proportion of gentian; but they infuse it in cold water, which does not extract the bitter principle so quickly or so fully as boiling water, although it dissipates less of the flavour of the aromatics. The alcohol is a useful addition, both in promoting the extraction of the virtues of all the ingredients, and in preserving the infusion longer from spoiling.

Gentian is the strongest and purest of the European bitters, and readily imparts its virtues to water. These infusions are in very common use as stomachic and tonic. The dose is from two to three drachms in simple peppermint, or any other vehicle.

COMPOUND WINE OF GENTIAN, COMMONLY CALLED BITTER WINE. (Vinum Gentianæ compositum; vulgo Vinum Amarum. E.)

Take of gentian root, half an ounce;
——— cinchona bark, one ounce;
——— Seville orange-peel, dried, two drachms;
——— canella alba, one drachm;
——— diluted alcohol, four ounces;
——— Spanish white wine, two pounds and a half:
First pour the diluted alcohol on the root and barks, sliced and bruised, and, after twenty-four hours, add the wine; then macerate for seven days, and strain.

This wine, which is a pleasant bitter, is intended as a substitute for the old tinctura ad stomachicos. Wines of this kind are sometimes introduced at the tables of epicures in Italy, to assist the stomach in digestion. The quantity given is from two to three drachms, in water, three or four times a day, or an hour before dinner, to create an appetite and assist digestion.

It properly enters into the composition of the bitter tincture of rhubarb of the Edinburgh college, which see under the article Rhubarb.

PREPARATIONS.

℞. 1. Take of the compound infusion of gentian, drachms 3,
——— prepared kali - - - - - - - grains 2,
——— spirit of pimento - - - - - - drachms 2,
——— cinnamon water - - - - - - drachms 7:
Make into a draught, to be taken an hour before dinner to create an appetite, or with some people four times a day.

℞. 2. Take of the compound tincture of gentian, drachms 2,
——— tincture of colombo - - - - - drachms 2,
——— cinnamon water,
——— peppermint water, equal quantities, drachms 4:
Form into a draught, of which take one four times a day, as a fine tonic.

PURPLE GENTIAN.

GENTIANA PURPUREA.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Corolla* monopetalous: *Capsule* two-valved, one-celled: the *Receptacles* two, longitudinal.

Spec. Char. *Corollas* somewhat five-cleft, campanulate, verticillate: *Calyxes* truncate.

DESCRIPTION.

This plant rises to a foot in height. Stem erect. Upper leaves in pairs, sheathing the stem, inclosing the flowers. Flowers large, purple, bell-shaped, standing in whorls. Anthers conical. Stigmas two reflexed. Capsule ovate, containing numerous small seeds.

HISTORY.

It is a native of the Alps, and was introduced in this country in the year 1768.

MEDICAL VIRTUES.

The same as with the preceding, and it may be remarked that our English gentians have most probably the same virtues as the foreign, as far as my experience has reached; yet we often seek at a distance what lies at the very threshold of our doors!

PRICKLY SALTWORT.

SALSOLA KALI.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Calyx* five leaves: *Corolla* none: *Capsule* one seed: *Seed* snailform.

Spec. Char. *Stem* herbaceous, decumbent: *Leaves* subulate, spiny, rough: *Calyx* marginate, axillary.

DESCRIPTION.

This rises to about a foot. The leaves stand in threes. The flowers are sessile, of a rose colour, obscurely five-cleft; border round, indented.

HISTORY.

It is a native of Britain, common on the sea shores, and flowers in July and August.

The barilla or soda is chiefly prepared from this plant: potash, from other kinds of vegetables.

Natural History of Potash.

If wood or vegetables be burnt in the open air, and the ashes repeatedly washed with water till it passes tasteless, and if this liquid be evaporated to dryness, the substance which remains is

called potash; far, however, from being in a state of purity. In this state it occurs in commerce.

It is seldom found in an uncombined state, except in wells in towns, as at Douay, &c. It is said to exist in the aluminous ore of La Tolfa. In combination with the sulphuric, nitric, and muriatic acids, it is found in Spain, and in the East Indies.

Potash was formerly denominated the vegetable alkali, but improperly, because it is met with abundantly in mineral bodies, more especially in volcanic products. Dr. Kennedy has lately discovered it in the pumice stone. Vauquelin has found it in the zeolite from the Ferro islands. Klaproth has likewise discovered it in the leucite, an earth of the siliceous genus.

Vegetable physiologists are not agreed whether potash be derived from the soil in which vegetables grow; whether it exists uncombined with any acid in plants; whether it be a product of vegetation; or whether it be generated during the process of burning.

Potash was for a long time unknown in its pure state, because it was difficult to obtain it. We shall examine its properties in that state, and then point out the methods of obtaining it.

Properties of Potash.

Potash, in a crystallized form, consists of soft quadrangular compressed prisms, which are extremely caustic and deliquescent. It dissolves all soft animal matters when brought into contact with it. It liquefies by a gentle heat, and rises in fumes at high temperatures. It does not unite in a direct manner with phosphorus. It easily combines with sulphur and metallic oxides. It dissolves alumine in the humid way, and even a small quantity of silex; but it does not act on glucine or zircon, nor on magnesia or lime. It contracts no union with barytes. It absorbs water and carbonic acid rapidly. It fuses into glass with silex by the aid of fire. It forms salts which in general do not yield their acid unless to barytes. It changes blue vegetable colours green, and possesses all the general properties of alkalies.

Methods of obtaining Potash.

It has long been a desideratum with chemists to possess a method of preparing potash in a state of absolute purity; the strong tendency which it has to combination renders this extremely difficult. The following are the methods now made use of:—

1. Bouillon la Grange's apparatus* consists of several boxes of common deal. At the bottom put river sand, which must be well washed, and over it add another stratum, but of a finer kind, and cover the whole with a cloth, besprinkled with wood ashes. In the bottom of each box a hole is made, into which is fitted a glass tube, for the purpose of affording a passage to the liquor as it filters through the sand.

Having arranged the apparatus in this manner, take equal parts of quicklime and potash of commerce, if the lime is very caustic; but in the contrary case, it requires twenty parts of lime to fifteen of potash: put water into an iron kettle, bring it nearly to a state of ebullition, and then add lime, which by its slaking will bring the water to that state completely. When it is slaked mix the potash, and form of the whole a thick liquid, which must be suffered to cool a little. Then pour the mixture into the boxes, and immediately throw water over it; but to prevent the water from making holes, when added, place over it a small board, which will rise with the water.

Care must be taken to place earthen pans, or other vessels, to receive the liquor which runs through the tubes; and, that the ley may not absorb carbonic acid from the atmosphere, the vessels must be closed with care, in such a manner as to exclude the external air. It will be necessary also to keep water always over the mixture, which must be collected till it passes tasteless from the tubes.

The liquors obtained are nearly of the same degree of strength till towards the end of the process, when they grow weak suddenly.

To evaporate the water, use should be made of cast iron pots, beginning with the last portion, which are a little weaker; and to prevent the necessity of keeping the strongest a long time in contact with the air when boiling, a strong ebullition is requisite. When the fluid is concentrated to a certain degree, any sulphate of potash that may be present will crystallize, and be precipitated.

To obtain dry potash pour the concentrated liquor into a small bason, and proceed with the evaporation, till a little of it poured on an iron plate, or a marble slab, becomes solid.

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* La Grange's Manual of Chemistry, vol. i. p. 172.

Then put the concrete potash into a jar, and pour over it very strong alcohol; the potash alone dissolves in it; the sulphate and muriate of potash, with the portions of earth and even of carbonic acid, which it obstinately retains, or which it may have acquired from the air during the evaporation, remain at the bottom of the solution. Afterwards decant the pure liquor, and distil it in a retort till it becomes colourless. It must then be evaporated in a silver bason. On cooling, it crystallizes in white laminæ, which are sometimes three-tenths of an inch in length: or, instead of suffering it to crystallize, it may be evaporated to dryness.

2. Lowitz has given another method*. According to this chemist, the whole of the operation for obtaining potash of the greatest purity, and without the least colour, consists in this: A lixivium of potash, freed from carbonic acid in the usual manner, is evaporated to a thick pellicle. After the cooling, the foreign salt which has crystallized is to be separated, and the evaporation of the lixivium continued in an iron pot. During this second evaporation the pellicle of foreign salts, particularly of carbonate of potash, which continues to be formed, must be carefully taken off with an iron skimmer. When no more pellicle is formed, and the matter ceases to boil up, it is removed from the fire and suffered to cool, continually stirred with an iron spatula. It is then to be dissolved in double the quantity of cold water, and the solution filtered, and evaporated in a glass retort, till it begins to deposit regular crystals. If the mass should consolidate ever so little by cooling, a small quantity of water is to be added, and it must be heated again to render it fluid. After the formation of a sufficient quantity of regular crystals, the fluid, which is very brown, is to be decanted, and the salt, after being suffered to drain, must be redissolved in the same quantity of water. The decanted fluid must be kept in a well-closed bottle, and suffered to become clear by subsiding during several days. It must then be decanted for a second evaporation and crystallization. The process must be repeated as long as the crystals afford, with the least possible quantity of water, solutions perfectly limpid. These solutions are to be preserved in well-closed bottles, to defend them from the access of air.

* Nicholson's Journal, vol. i. p. 14.

The greatest difficulty of this process arises from the facility with which the fluid assumes a solid form. To obviate this inconvenience a small portion of it may be concentrated to the point at which it becomes converted into a solid mass by cooling. The saturation of a lixivium considerably evaporated may be ascertained by throwing small pieces of this mass into it during its cooling. When these are no longer dissolved, it is a proof that it is at the required point.

With regard to the foreign salts which are mixed with the potash, the greatest portion separates by crystallization after the first evaporation. The rest is separated during the second concentration by the continual skimming of the pellicle. The little which may remain with the potash must precipitate for want of water of solution, in a lixivium, wherein the alkali itself is no longer dissolved but by its own water of crystallization.

Potash, and Silex (*Flint*), form Glass.

If potash and silex are fused together, a combination is obtained known under the name of glass. This product differs according to the quantities of silex and potash of which it is composed.

If three or four parts of potash be fused with one of silex, the result will be a soft brittle kind of glass, which is soluble in water. This solution is called liquid siliceous potash, or improperly liquid of flints.

To prepare this liquid, take one part of silex, reduced to a fine powder (or pure sand), and three or four parts of potash; put these two substances into a crucible, which must be only half filled, and place the crucible in the fire. As soon as the matter enters into fusion it puffs up considerably, and continues to swell till the alkali has dissolved the silex. The crucible is to be kept uncovered as long as the effervescence lasts; but when it is over cover the crucible, and augment the heat till the whole fuses quietly. The contents are then poured out on a dry iron plate or stone; the matter as it cools becomes hard, and assumes the appearance of glass.

Natural History of Soda.

The name of soda is given to the next alkali, which greatly resembles potash. Hitherto we are not better acquainted with the nature of soda than with that of potash, being equally uncer-

tain whether it previously existed ready formed in the vegetable, or if it be a combination of certain radicals effected during the process for obtaining it.

Soda frequently occurs in the mineral kingdom united with sulphuric, muriatic, and boracic acids; it is also found in large quantities in Egypt combined with carbonic acid. It appears to be deposited in large impure masses, under the surface of the earth, in various countries, from which it is extracted by running water. Thus it is found after the spontaneous evaporation of the water, mixed with sand in the bottom of lakes in Hungary, in the neighbourhood of Bilin in Bohemia, and in Switzerland. It occurs also in China, and near Tripoli in Syria, Egypt, Persia, and India. It frequently oozes out of walls, and crystallizes on their surface.

Properties of Soda.

Soda differs particularly from potash by the following properties. In the fire it is rather more fusible. When exposed to the contact of the air it attracts water and carbonic acid; but it does not liquefy like potash, it merely acquires a pasty consistence, and at last crumbles into powder. It is not altered by light. It attracts sulphur and sulphurated hydrogen more feebly. It adheres less strongly to the acids. It fuses and dissolves alumine more easily. All its other properties, its volatilization by a very high degree of heat, its acrid causticity, its solubility, its combinations with sulphur, &c., resemble those of potash.

Method of obtaining Soda.

Soda, like potash, is procured by lixiviation from the ashes of burnt plants, but only from those which grow upon the sea shores. The variety of plants employed for this purpose is very considerable. In Spain soda is procured from the different species of the Salsola salicornia and Batis maritima. The Zostera maritima is burnt in some places on the borders of the Baltic. In this country we burn the various species of Fuci, and in France they burn the Chenopodium maritimum.

The soda thus procured is more or less pure according to the nature of the particular plant from which it is obtained. The greatest part, however, is a true carbonate of soda.

In order to obtain it in a state of purity the carbonate must

be treated like potash of commerce with lime and ardent spirit, as described before.

Remark.—It is curious that some plants, which in their native soil yield only potash, afford also soda if they are cultivated in the neighbourhood of the sea, or on land occasionally inundated by it.

Experimental Proofs of the Properties of Soda.

Experiment I.

Method of distinguishing Soda from Potash.

Let fall into a solution of the alkali to be investigated a few grains of oxalic acid; for this acid forms with potash oxalate of potash, which is very soluble, and on the contrary with soda it produces oxalate of soda, which is of a very difficult solubility.

Experiment II.

Formation of Soap.

The combination of soda or potash with oils, or fat in general, forms the compound called soap. The union of oil, &c. with potash affords those called soft soap; the combination of soda with the same substances affords those called hard soap. It seems to be an established truth, that potash combined with any kind of fat can only afford a soap, to which no cooling can give a hard consistency. The addition, however, of a certain quantity of soda, or even of muriate of soda, will produce the effect of consolidating it. The formation of white soap may be shown in the following manner:—

Let one part of lime (previously slaked) and two of soda be boiled in twelve parts of water for half an hour, filter the lixivium through a linen cloth (pouring back the fluid upon the cloth till it passes clear), and evaporate it till its specific gravity be about 1·375, or, which is the same thing, till a phial which would contain one ounce of water will hold an ounce and three-eighths of the fluid: this having been done, soap may be made by mere mixture of this ley with olive oil, in the proportion of one part of the former with two of the latter, in a glass or stone-ware vessel. This mixture being beat up from time to time with a wooden spatula, soon becomes consistent, and if left to stand for four or five days it forms a white hard soap.

Remark.—In large manufactories the ley for making soap is

made no stronger than to float a new-laid egg, when the workmen begin to form the mixture. The oil, or tallow, is first boiled with a weak ley until the whole is formed into a saponaceous compound. It is then kept boiling with a stronger ley until it acquires a considerable consistence, and seems to be separating from the fluid below. This separation is a very material part of the operation; and to effect it completely a quantity of common salt is added, the materials are continually boiled for three or four hours, and then the fire is withdrawn. The soap will now be found united at the top of the liquor, or what is called the waste ley, which is of no further use, and is therefore drawn off. The soap is now melted for the last time with a ley, or even with water; it is then allowed to cool for a short time, and afterwards cast into wooden frames. The last melting is of considerable importance, as it gives the soap a compact appearance.

The tallow for making soap is reckoned good if 13 cwt. yield a ton of white soap.

Mottled soap is made in a similar manner as the last; the mottled appearance is given towards the end of the operation of boiling by dispersing the ley through the soap, or by adding to it a quantity of a solution of sulphate of iron, which by its decomposition deposits its oxide through the soap, and gives it an appearance of blue marble. In some manufactures the black oxide of manganese is made use of for the same purpose.

Yellow soap is made with tallow and resin; and these are reckoned good, if 10 cwt. of tallow and $3\frac{1}{2}$ cwt. of resin, with the proper quantity of soda, afford a ton of soap.

PREPARATIONS.

Water of Potash, commonly called Caustic Ley. (Aqua Potassæ, vulgo Lixivium Causticum. E.)

Take of newly prepared lime, eight ounces;
——— carbonate of potash, six ounces:

Put the lime into an iron or earthen vessel, with twenty-eight ounces of warm water. After the ebullition is finished, instantly add the salt; and, having thoroughly mixed them, cover the vessel till they cool. When the mixture has cooled, agitate it well, and pour it into a glass funnel, whose throat must be obstructed with a piece of clean linen. Cover the upper orifice of the funnel, and insert its tube into another glass vessel, so that

the water of potash may gradually drop through the rag into the lower vessel. As soon as it ceases to drop, pour into the funnel some ounces of water; but cautiously, so that it may swim above the matter. The water of potash will again begin to drop, and the affusion of water is to be repeated in the same manner, until three pounds have dropped, which will happen in the space of two or three days; then mix the superior and inferior parts of the liquor together by agitation, and keep it in a well-stopt phial.

Water of Pure Kali. (Aqua Kali Puri. L.)

Take of prepared kali, four pounds;
——— lime, six pounds;
——— distilled water, four gallons:

Put four pints of water to the lime, and let them stand together for an hour; after which add the kali and the rest of the water; then boil for a quarter of an hour; suffer the liquor to cool, and strain it. A pint of this liquor ought to weigh sixteen ounces.

If the liquor effervesce with any acid, add more lime, and boil the liquor and lime in a covered vessel for five minutes. Lastly, let it cool again, and strain it.

These processes do not differ materially. They are founded upon the affinity of lime being stronger than that of potash for carbonic acid. Of course, when lime comes in contact with carbonate of potash, the carbonic acid quits the potash to unite with the lime, and the results of the mixture are potash and carbonate of lime. Now, as the carbonate of lime is insoluble in water, and the potash is very soluble, they may be separated by filtration. In doing this, however, we must take care to employ instruments on which the solution of potash does not act, and to prevent the free access of air, from which it would attract carbonic acid, and thus frustrate the whole operation. The latter object is attained by covering the upper or broad end of the funnel with a plate of glass, and inserting the lower end into the neck of a phial, which it fits pretty closely. The former object is attended with greater difficulties, and indeed scarcely to be effected, so powerful and general is the agency of potash. All animal substances are immediately attacked and destroyed by it; therefore our filters cannot be made of silk, woollen, or paper, which contains glue; and although neither vegetable matters nor silica entirely escape its action, linen and sand are, on the whole, the least objectionable. A filter of sand was used

by Dr. Black: he first dropped a rugged pebble into the tube of the funnel, in some part of which it formed itself a firm bed, while the inequalities on its surface afforded interstices of sufficient size for the passage of the filtering liquor. On the upper surface of this stone he put a thin layer of lint or clean tow; immediately above this, but not in contact with it, he dropped a stone similar to the former, and of a size proportioned to the swell in the upper part of the tube of the funnel. The interstices between this second stone and the funnel were filled up with stones of a less dimension, and the gradation uniformly continued till pretty small sand was employed. Finally, this was covered with a layer of coarser sand, and small stones, to sustain the weight of the fluid. A filter of sand being thus constructed in the funnel, it was washed perfectly clean by making fresh water pass through it till it dropped from the lower extremity of the funnel perfectly clear and transparent; and before using it, it was allowed to stand for some days, that no water might remain among the interstices of the sand.

From the spongy nature of the residuum which remains upon the filter, and especially if we use that of sand, a considerable quantity of the solution of potash will be retained. It is, however, easily obtained by pouring gently over it, so as to disturb it as little as possible, a quantity of water; the ley immediately begins again to drop from the funnel; and as, from the difference of their specific gravity, the water does not mix with it, but swims above it, the whole ley passes through before any of the water. By means of the taste we easily learn when the whole ley has passed.

As it is natural to suppose that the strongest solution will pass first, and the weakest last, we are directed to agitate the whole together to render their strength uniform.

If the solution of potash be pure it will be colourless, and it will neither effervesce with acids, nor form a precipitate with carbonate of potash. If it effervesces, carbonic acid is present, and must be separated by again boiling the solution with a little lime, or by dropping into it lime water as long as it produces any precipitate. If, on the contrary, it contain lime, from too much of it having been employed in the preparation, it may be separated by dropping into the ley a solution of the carbonate of potash. When we have thus purified our solution of potash, it must be again filtered.

MEDICAL USE.

The solution of caustic potash, under various names, has at different times been celebrated as a lithontriptic, and as often fallen again into disuse. The very contradictory accounts of its effects as a solvent are now, in some degree, explicable, since it has been discovered that urinary calculi are very different in their natures, so that some of them are only soluble in acids, and others only in alkalies. Of the last description are the calculi of uric acid, which are very frequent, and those of urate of ammonia. On these, therefore, alkalies may be supposed to make some impression; and that alkalies, or alkaline carbonates, taken by the mouth, have occasionally relieved calculous complaints, is certain. It is, however, said that their continued use debilitates the stomach; and M. Fourcroy has proposed applying the remedy immediately to the disease, by injecting into the bladder a tepid solution of potash or soda, so dilute that it can be held in the mouth. Before the alkaline solution be injected, the bladder is to be completely evacuated of urine, and washed out with an injection of tepid water. After the alkaline injection has remained in the bladder half an hour or more, it is to be evacuated, and allowed to settle. If, on the addition of a little muriatic acid, a precipitate be formed, we shall have reason to conclude that the calculus contains uric acid, and that the alkali has acted on it.

Very diluted alkaline solutions may also be taken into the stomach as antacids, but we possess others which are preferable.

Externally alkaline solutions have been more frequently used, either very dilute, simply as a stimulus, in rickets, gouty swellings, and spasmodic diseases, or concentrated as a caustic, to destroy the poison of the viper and of rabid animals.

Potash, formerly Strongest Common Caustic. (Potassa, olim Causticum Commune Acerrimum. E.)

Take of the solution of potash, any quantity:

Evaporate it in a covered very clean iron vessel, till, on the ebullition ceasing, the saline matter flows gently like oil, which happens before the vessel becomes red. Then pour it out on a smooth iron plate; let it be divided into small pieces before it hardens, and immediately deposited in a well-stopt phial.

Pure Kali. (Kali Purum. E.)

Take of water of pure kali, one gallon:

Evaporate it to dryness; after which let the salt melt on the fire, and pour it out.

The principal thing to be attended to in this operation, is to conduct the evaporation so rapidly that the ley shall not absorb any carbonic acid from the atmosphere. As long as any water of solution remains, the ebullition is evident, and the evaporation is to be continued until it cease. The heat is then to be increased a little, which renders the potash perfectly fluid, and gives it the appearance of an oil, when it is ready to be poured out, either on a slab, as directed by the colleges, or into iron moulds, such as are used for the melted nitrate of silver.

The potash prepared according to these directions is sufficiently pure for medical use, but is not fit for chemical experiments. We can, however, obtain it perfectly white and crystallized, according to Berthollet, by adding to the ley, when evaporated so far that it would assume the consistence of honey, if permitted to cool, a quantity of alcohol, equal to one-third of the carbonate of potash operated on, mixing them together, and letting them boil a minute or two. The mixture is then to be poured into a glass vessel, and corked up, when the impurities will gradually subside, partly in a solid form, and partly dissolved in water. The supernatant alcoholic solution is then to be evaporated rapidly, till its surface become covered with a black crust, which is to be removed, and the liquid below is to be poured into a porcelain vessel, when it will concrete into a white substance, which is to be broken in pieces, and immediately excluded from the action of the air.

A less expensive way of obtaining potash perfectly pure is that of Lowitz before mentioned.

MEDICAL USE.

Potash is only used as a caustic, or to form solutions of a known strength; and even its use as a caustic is inconvenient, from its being so quickly affected by the air, and from its rapid deliquescence, which renders it apt to spread.

Potash with Lime, formerly Milder Common Caustic. (Potassa cum Calce, olim Causticum Commune Mitius. E.)

Take of solution of potash, any quantity;

Evaporate in a covered iron vessel till one third remains; then mix with it as much new-slaked lime as will bring it to the consistence of pretty solid pap, which is to be kept in a vessel closely stopt.

Lime with Pure Kali. (Calx cum Kali Puro. L.)

Take of quicklime, five pounds and four ounces;
——— water of pure kali, sixteen pounds:

Boil away the water of pure kali to a fourth part; then sprinkle in the lime, reduced to powder by the affusion of water. Keep it in a vessel closely stopt.

Caustic Kali with Lime. (Kali Causticum cum Calce.)

Evaporate caustic ley to one-third; then add powdered burnt lime till it form a sufficiently thick mass, which is to be kept in well-closed vessels.

The addition of the lime in these preparations renders them less apt to deliquesce, more easily managed, and milder in their operation.

Carbonate of Potash. (Carbonas Potassæ. E.)

Let impure carbonate of potash, called in English pearlashes, be put into a crucible, and brought to a low red heat, that the oily impurities, if there be any, may be burnt out: then triturate it with an equal weight of water, and mix them thoroughly by agitation. After the fæces have subsided, pour the liquor into a very clean iron pot, and boil to dryness, stirring the salt towards the end of the process, to prevent its sticking to the vessel.

Prepared Kali. (Kali Præparatum. L.)

Take of potashes, two pounds;
——— boiling distilled water, three pints:

Dissolve and filter through paper; evaporate the liquor till a pellicle appears on the surface; then set it aside for twelve hours, that the neutral salts may crystallize: after which pour out the liquor, and boil away, with a slow fire, the whole of the water, constantly stirring, lest the salt should adhere to the pot. In like manner is purified impure kali from the ashes of any kind of vegetable.

The same salt may be prepared from tartar, which should be burnt till it becomes of an ash colour.

Pure Carbonate of Potash, formerly Salt of Tartar. (Carbonas Potassæ Purissimus, olim Sal Tartari. E.)

Take of impure super-tartrate of potash, any quantity:
Wrap it up in a moist bibulous paper, or put it into a crucible, and burn it into a black mass, by placing it among live coals. Having reduced this mass to powder, expose it in an open crucible to the action of a moderate fire till it become white, or at least of an ash-gray colour, taking care that it do not melt. Then dissolve it in warm water; strain the liquor through a linen cloth, and evaporate it in a clean iron vessel, diligently stirring it, towards the end of the process, with an iron spatula, to prevent it from sticking to the bottom of the vessel. A very white salt will remain, which is to be left a little longer on the fire, till the bottom of the vessel becomes almost red. Lastly, when the salt is grown cold, keep it in glass vessels well stopped.

The potash of commerce we have already shown to contain a considerable proportion of foreign salts. By the process directed by the colleges it is purified from those which are crystallizable; and, although it still contains muriate of potash and silica, it is sufficiently pure for the purposes of medicine.

The purest carbonate of potash in common use is that obtained by incinerating the impure super-tartrate of potash, as all the substances it contains, except the potash, are decomposed by the heat. The tartaric acid and colouring matter are destroyed, and part of the carbonic acid, which is formed, unites with the potash.

But this salt, in whatever way obtained, is not strictly entitled to the appellation of carbonate; for it is not saturated with the acid, or rather it is a mixture of carbonate of potash and potash, in variable proportions. It is owing to the uncombined potash that it is still deliquescent, and in some degree caustic. It may be easily saturated, however, with carbonic acid, by exposing it, in solution, to the contact of the air for a considerable time, or by making a stream of carbonic acid gas pass through a solution of it, or by distilling it with carbonate of ammonia. M. Curadau has proposed a cheaper mode of saturating potash with carbonic acid. He dissolves the potash in a sufficient quantity of boiling water, mixes it with as much dried tanners' bark as to make it pretty dry, and then exposes the mixture, in a covered crucible, to the heat of a reverberatory

furnace for half an hour. By lixiviation and crystallization the mixture affords beautiful permanent crystals of carbonate of potash. In this state it consists of about 43 acid, 40 potash, and 17 water. The saturation with carbonic acid is one of the best means of purifying the sub-carbonate of potash, for it always separates silica from the uncombined alkali.

MEDICAL USE.

Carbonate of potash is frequently employed in medicine, in conjunction with other articles, particularly for the formation of saline neutral draughts and mixtures: but it is used also by itself, in doses from three or four grains to fifteen or twenty; and it frequently operates as a powerful diuretic, particularly when aided by proper dilution.

Water of Prepared Kali. (Aqua Kali Præparati. L.)

Take of prepared kali, one pound;
Set it in a moist place till it deliquesce, and then strain it.

Water of Sub-carbonate of Kali. (Aqua Sub-carbonatis Kali. D.)

Take of sub-carbonate of kali, any quantity;
Place it in a wide glass funnel, whose throat is obstructed with a rag. Set this in a cellar, that the salt may deliquesce in the moist air. Let the solution be caught in a vessel placed under it.

This is the old *oleum tartari per deliquium,* and is a solution of carbonate of potash in a variable quantity of water; for, by exposure to the air, the sub-carbonate attracts not only water, but carbonic acid.

Solution of Super-carbonate of Potash. (Aqua Super-carbonatis Potassæ. E.)

Take of water, ten pounds;
——— pure carbonate of potash, one ounce:
Dissolve, and expose the solution to a stream of carbonic acid, arising from

Carbonate of lime in powder,
Sulphuric acid, each three ounces;
Water, three pounds, gradually and cautiously mixed.

The chemical apparatus invented by Dr. Nooth is well adapted for this preparation. But, if a larger quantity of the liquor be required, the apparatus of Dr. Woulfe is preferable.

As soon as the preparation is finished, the liquor should be drawn off into pint bottles, which are to be well corked, and kept in a cool situation, with the head down, or laid on one side. It should be perfectly transparent, and have an acidulous, not at all alkaline, taste; and, when poured out of the bottles, it should have a sparkling appearance.

MEDICAL USE.

In this solution carbonate of potash is combined with excess of carbonic acid, by which means it is better adapted for internal use, as it is rendered not only more pleasant to the taste, but is less apt to offend the stomach. Indeed it is the only form in which we can exhibit potash in sufficient doses, and for a sufficient length of time, to derive much benefit from its use in calculous complaints. It has certainly been frequently of advantage in these affections, but probably only in those instances in which the stone consists of uric acid, or urate of ammonia; for, although super-saturated with carbonic acid, yet the affinity of that acid for potash is so weak, that it really operates as an alkali.

Six or eight ounces may be taken two or three times a day. It in general proves powerfully diuretic, and sometimes produces inebriation. This last effect is ascribed to the carbonic acid. A common method is to drink some milk after each dose, or mixed with it, to lessen its violence.

Acetated Kali. (Kali Acetatum. L.)

Take of prepared kali, one pound;

Boil it, with a slow fire, in four or five times its quantity of distilled vinegar; and, when the effervescence ceases, add, at different times, more distilled vinegar, until, one portion of vinegar being nearly evaporated, the addition of another will excite no effervescence, which will happen when about twenty pounds of distilled vinegar are consumed; afterwards let it be dried slowly. An impure salt will be left, which is to be melted for a little while with a slow fire, then dissolved in water, and filtered through paper.

If the fusion has been rightly performed, the strained liquor will be colourless; if otherwise, of a brown colour.

Lastly, evaporate this liquor with a slow fire, in a very shallow glass vessel, frequently stirring the mass, that the salt may be more completely dried, which should be kept in a vessel closely stopped.

The salt ought to be very white, and dissolve wholly, both in water and spirit of wine, without leaving any fæces. If the salt, although white, should deposit any fæces in spirit of wine, the solution should be filtered through paper, and the salt again dried.

This is both a troublesome and expensive preparation; for, when attempted to be made by simply evaporating to dryness, the salt has always a dark unpleasant colour, which can neither be removed by repeated solution and crystallization, nor even by solution in alcohol. It is doubtful to what the colour is owing. It has been ascribed by some to part of the acetic acid being decomposed by heat during the exsiccation of the salt: they accordingly recommend the evaporation to be conducted very gently, and the pellicles to be skimmed from the surface of the liquor as fast as they are formed; and in this way, they say, they have procured, at once, a very white salt. Others ascribe it to some foreign matter, which rises in distillation with the last portions of the acetous acid, and therefore direct, that only the first portions which come over should be used, or that the acetous acid should be distilled with charcoal; while others again ascribe it to accidental impurities contracted during the operation, and recommend the utmost attention to cleanliness, and the use of earthen vessels. To whatever cause it may be owing, and the second appears to us the most probable, the colour is most effectually destroyed by fusing the salt. The heat necessary to do this decomposes the colouring matter; and, on dissolving the fused mass in water, and filtering the solution, we find a fine light charcoal on the filter. But this fusion is attended with considerable loss, for part of the acetic acid itself is decomposed.

The operator must be particularly careful, in melting it, not to use a greater heat, nor keep it longer liquefied, than what is absolutely necessary; a little should be occasionally taken out, and put into water, and, as soon as it begins to part freely with its black colour, the whole is to be removed from the fire.

The exsiccation of the solution of the salt, after it has been fused, must be conducted very carefully, as it is exceedingly apt to be decomposed, which would render a new solution and exsiccation necessary. The test of its purity, by dissolving it in

alcohol, as directed by the London college, is to discover if any of the acetic acid itself has been decomposed in the operation; for the carbonate of potash, which is in that case formed, is insoluble in alcohol.

To spare trouble and expense, attempts have been made to prepare acetate of potash with undistilled vinegar, and even with the residuum of the distillation of acetic acid; and they have been, to a certain degree, successful: but, as repeated fusion and crystallization are necessary to bring the salt to a certain degree of purity, it does not appear that they were more œconomical. But if to acetate of potash, prepared with impure vinegar, we add a sufficient quantity of sulphuric acid, by distillation we obtain an acetic acid of great strength, which forms a beautiful acetate of potash without fusion. Lastly, this salt may be prepared by the decomposition of acetates; for example, of the acetate of lime by tartrate of potash.

Acetate of potash has a sharp, somewhat pungent, taste. It is soluble at 60° in about its own weight of water. It is also soluble in alcohol. It is deliquescent. It is decomposed by the stronger acids; by a decoction of tamarinds; by the sulphates of soda and of magnesia; by muriate of ammonia; by the tartrate of soda and potash; and by some metalline salts. Its acid is destroyed by a high temperature.

MEDICAL USE.

Acetate of potash, however prepared, provided it be properly made, is a medicine of great efficacy, and may be so dosed and managed, as to prove either mildly cathartic, or powerfully diuretic: few of the saline deobstruents equal it in virtue. The dose is from half a scruple to a drachm or two. A simple solution, however, of carbonate of potash in vinegar, without exsiccation, is perhaps not inferior, as a medicine, to the more expensive salt. Two drachms of the alkali, saturated with vinegar, have produced, in hydropic cases, ten or twelve stools, and a plentiful discharge of urine, without any inconvenience.

Sulphate of Potash, formerly Vitriolated Tartar. (Sulphas Potassæ, olim Tartarum Vitriolatum. E.)

Take of sulphuric acid, diluted with six times its weight of water, any quantity;

Put it into a capacious glass vessel, and gradually drop into it

pure carbonate of potash, dissolved in six times its weight of water, as much as is sufficient thoroughly to neutralize the acid. The effervescence being finished, strain the liquor through paper, and, after evaporation, set it aside to crystallize.

Sulphate of potash may be also conveniently prepared from the residuum of the distillation of nitrous acid, by dissolving it in warm water, and saturating it with carbonate of potash.

Vitriolated Kali. (Kali Vitriolatum. L.)

Take of the salt which remains after the distillation of the nitrous acid, two pounds;

——— distilled water, two gallons:

Burn out the superfluous acid with a strong fire in an open vessel; then boil it a little while in water; strain, and set the liquor aside to crystallize.

This salt is very seldom prepared on purpose, as it may be obtained from the residuum of many other preparations, by simple solution and crystallization; for so strong is the affinity between sulphuric acid and potash, that they scarcely ever meet without combining to form this salt. All the sulphates, except that of baryta, are decomposed by potash and most of its combinations; and reciprocally, all the compounds of potash are decomposed by sulphuric acid and most of its combinations; and in all these decompositions sulphate of potash is one of the products.

The greatest part of the sulphate of potash of commerce is obtained from the residuum of the distillation of sulphate of iron with nitrate of potash by lixiviating it, super-saturating the solution with carbonate of potash, filtering it boiling hot, and allowing it to crystallize. The liquor remaining after the precipitation of magnesia is also a solution of sulphate of potash. It is also got in considerable quantities from the residuum remaining in the retort after the distillation of nitrous acid; and all the colleges have given directions for obtaining it in this way. This residuum generally contains an excess of acid, which converts part of the sulphate into super-sulphate of potash. The London college expel the excess of acid by intense heat, and thus get the whole of the sulphate; but, at the same time, convert it into a very difficultly soluble mass, while the Edinburgh and Dublin colleges derive advantage from the excess of acid, by simply saturating it with carbonate of potash.

As the residuum of the distillation of nitrous acid may not always be at hand, the Edinburgh college also give a receipt for making this salt, by directly combining its constituents. It would have been more œconomical to have used a solution of sulphate of iron in place of sulphuric acid, by which means not only an equally pure sulphate of potash would have been procured at less expense, but also a very pure carbonate of iron.

Sulphate of potash forms small, transparent, very hard crystals, generally aggregated in crusts, and permanent in the air. It has a bitter taste, is slowly soluble in water, requiring 16 parts at 60°, and 4 at 212°. It is not soluble in alcohol. It decrepitates when thrown on live coals, and melts in a red heat. It consists of 45·2 acid, and 54·8 potash. It is decomposed by the barytic salts; by the nitrates and muriates of lime and of strontia; by the tartrates partially; and by the salts of mercury, silver, and lead.

MEDICAL USE.

Sulphate of potash, in small doses, as a scruple, or half a drachm, is an useful aperient; in larger ones, as four or five drachms, a mild cathartic, which does not pass off so hastily as the sulphate of soda, and seems to extend its action further.

It is a charming medicine conjoined with rhubarb; thus a scruple of the powder, a drachm of the tincture, with a scruple and a half of sulphurated kali, which quickens the action of the latter, mixed with six drachms of cinnamon and peppermint water, forms a mild and pleasant opening draught.

Sulphas Potassæ cum Sulphure, olim Sal Polychrestus. E.

Take of nitrate of potash in powder,
——— sublimed sulphur, of each equal parts:
Mingle them well together, and inject the mixture, by little and little at a time, into a red-hot crucible: the deflagration being over, let the salt cool, after which it is to be put up in a glass vessel well stopped.

In this process the nitric acid of the nitrate of potash is decomposed by the sulphur, which is in part acidified. But the quantity of oxygen contained in the nitric acid is not always sufficient to acidify the whole sulphur employed; therefore, part of it remains in the state of sulphureous acid, which is probably chemically combined with part of the potash in the state of sulphite; for the whole saline mass formed is more soluble in water than

sulphate of potash. It is crystallizable, and, by exposure to the air, gradually attracts oxygen, and is converted into sulphate of potash. "In some experiments," says the learned and ingenious Dr. Duncan, "which I made to determine the state in which the sulphur existed in this salt, carefully prepared, it seemed to be sulphuric acid; for it neither gave out a sulphureous smell on the addition of sulphuric acid, nor was a solution of it precipitated by acids. In its medical effects and exhibition it agrees with sulphate of potash.

Oxymuriatic Alkaline Water. (Aqua Alcalina Oxymuriatica. D.)

Take of dried muriate of soda, two pounds;
——— manganese, in powder, one pound;
——— water,
——— sulphuric acid, of each two pounds:
Put into a matrass the muriate of soda and manganese, mixed, and pour on the water; then, by means of a proper apparatus, add gradually, and at different times, the sulphuric acid, and let the gas evolved pass through a liquor consisting of
Carbonate of kali, four ounces;
Water, twenty-nine ounces, by measure.
Towards the end of the operation heat the matrass moderately. The specific gravity of this liquor is 1087.

This is a solution of the oxymuriate of potash; for the carbonate of potash in the receiver is decomposed by the oxymuriatic gas disengaged in the matrass by the action of the sulphuric acid on the oxide of manganese and muriate of soda. A mixed sulphate of soda and manganese remains in the retort, while the oxygen and the muriatic acid, disengaged, unite in their nascent state, and form oxymuriatic acid, which escapes in the form of gas.

MEDICAL USE.

The oxymuriate of potash was, for a time, much extolled in the cure of syphilis, especially in the early stage; yet it is now rarely, if at all, used. It was also recommended as an oxygenizing remedy in typhus, scurvy, and other diseases supposed to depend on a deficiency of oxygen in the system. It was given in doses of from five to fifteen grains, three times a day; and it merits a full and impartial trial.

Tartarized Kali. (Kali Tartarizatum. L.)

Take of prepared kali, one pound;
——— crystals of tartar, three pounds;
——— distilled water, boiling, one gallon:

To the salt, dissolved in the water, throw in, gradually, the crystals of tartar powdered: filter the liquor, when cold, through paper; and, after due evaporation, by a gentle heat, set it apart to crystallize.

The tartaric acid is capable of uniting with potash in two proportions, forming in the one instance a neutral, and in the other an acidulous salt. The latter is an abundant production of nature; but it is easily converted into the former by saturating it with potash, or by depriving it of its excess of acid. It is by the former method that the colleges direct tartrate of potash to be prepared; and the process is so simple that it requires little comment. For the sake of œconomy we should come as near the point of saturation as possible, but any slight deviation from it will not be attended with much inconvenience. Indeed, it is, perhaps, advisable to leave a slight excess of acid, which, forming a small quantity of very insoluble salt, leaves the remainder perfectly neutral. The evaporation must be conducted in an earthen vessel, for iron discolours the salt. It is easily crystallized, and the crystals become moist in the air. It has an unpleasant bitter taste. It is soluble in four parts of cold water, and still more soluble in boiling water, and it is also soluble in alcohol. It is totally or partially decomposed by all acids. On this account it is improper to join it with tamarinds, or other acid fruits, which is too often done in the extemporaneous practice of those physicians who are fond of mixing different cathartics together, and know little of chemistry! It is also totally decomposed by lime, baryta, strontia, and magnesia, and partially by the sulphates of potash, soda, and magnesia, and by the muriate of ammonia.

MEDICAL USE.

In doses of a scruple, half a drachm, or a drachm, this salt is a mild, cooling aperient: two or three drachms commonly loosen the belly, and an ounce proves pretty strongly purgative. It has been particularly recommended as a purgative for maniacal and melancholic patients. It is an useful addition to the purgatives of the resinous kind, as it promotes their operation, and at the same time tends to correct their griping quality.

Dried Carbonate of Soda. (Carbonas Sodæ Siccatum. D.)

Liquefy, over the fire, crystals of carbonate of soda in a silver crucible, and then, increasing the heat, stir the liquefied salt until, by the consumption of the water, it become dry. Reduce it to fine powder, and keep it in close vessels.

Carbonate of soda, deprived of its water of crystallization, is a very excellent remedy, for which we are indebted to Dr. Beddoes: he desires it to be prepared by simply exposing the pounded crystals before the fire; which appears to be preferable to the process directed by the Dublin college, in which much of the carbonic acid may be expelled. By simple efflorescence crystallized carbonate of soda loses more than half its weight, and falls down into a fine permanent powder. Whenever soda is prescribed in the form of pills, the effloresced carbonate is to be used, as, when made of the crystallized salt, they crack and fall to pieces by the action of the air upon them.

MEDICAL USE.

Dr. Beddoes first recommended the powder of effloresced soda, in calculous complaints, as a substitute for the super-carbonated alkaline waters, when these produced giddiness, or were too expensive; but its use has since been extended much further; and it is found to be not only an excellent antacid, but seems almost to possess specific virtues in affections of the urinary organs. One or two scruples may be given, in the course of the day, in the form of powder, or in pills, made up with soap and some aromatic.

Phosphate of Soda. (Phosphas Sodæ. E.)

Take of bones burnt to whiteness, and powdered, ten pounds;
——— sulphuric acid, six pounds;
——— water, nine pounds:

Mix the powder with the sulphuric acid in an earthen vessel; then add the water, and mix again: then place the vessel in a vapour bath, and digest for three days; after which dilute the mass with nine pounds more of boiling water, and strain the liquor through a strong linen cloth, pouring over it boiling water, in small quantities at a time, until the whole acid be washed out. Set by the strained liquor, that the impurities may

subside; decant the clear solution, and evaporate it to nine pounds. To this liquor, poured from the impurities, add carbonate of soda, dissolved in warm water, until the effervescence cease. Filter the neutralized liquor, and set it aside to crystallize. To the liquor that remains after the crystals are taken out, add a little carbonate of soda, if necessary, so as to saturate exactly the phosphoric acid; and dispose the liquor, by evaporation, to form crystals. Lastly, the crystals are to be kept in a well closed vessel.

Dub.

Take of burnt bones, in powder, five pounds;

——— sulphuric acid, three pounds and a half, by weight: Mix the powder, in an earthen vessel, with the sulphuric acid; gradually add five pints of water, and agitate the mixture; digest for three days, adding, from time to time, more water, to prevent the mass from becoming dry, and continuing the agitation; then add five pints of boiling water, and strain through linen, pouring on boiling water repeatedly, until all the acid be washed out. Set aside the strained liquor until the fæces subside, from which pour it off, and reduce, by evaporation, to one half; then add of carbonate of soda, dissolved in a sufficient quantity of warm water, three pounds ten ounces. Filter, and, by alternate evaporation and cooling, let it form crystals, which are to be kept in a well-closed vessel.

If the salt be not sufficiently pure, dissolve and crystallize it again.

The first part of this process consists in destroying the gelatine of the bones by the action of heat. When burnt to perfect whiteness, they retain their form, but become friable, and consist of phosphate of lime, mixed with a very little carbonate of lime and carbonate of soda. In performing this part of the process, we must take care not to heat the bones to a bright red, as by it they undergo a kind of semi-fusion, and become less soluble. The complete combustion of the charcoal is facilitated by the free contact of the air; we must therefore bring every part, in succession, to the surface, and break the larger pieces.

In the second part of the process the phosphate of lime is decomposed by the sulphuric acid. This decomposition is, however, only partial. The sulphuric acid combines with part of the lime, and forms insoluble sulphate of lime. The phosphoric acid separated from that portion of lime, immediately combines

with the rest of the phosphate of lime, and forms super-phosphate of lime, which is not further decomposable by sulphuric acid.

The super-phosphate of lime, thus formed, is soluble in water; but, as the sulphate of lime, with which it is mixed, concretes into a very solid mass, it is, in some measure, defended from the action of water. On this account the whole mass is directed to be digested for three days in vapour, by which means it is thoroughly penetrated, and prepared for solution, in the boiling water, which is afterwards poured on it. It is probably to render the subsequent solution easier, that Thenard directs the bone-ashes to be made into a thin paste (*bouillie*) with water before the sulphuric acid is added to them.

Having thus got a solution of super-phosphate of lime, it is next decomposed by carbonate of soda dissolved in water. This decomposition, likewise, is only partial, as it deprives the super-phosphate of lime of its excess of acid only, and reduces it to the state of phosphate. The phosphate of lime, being insoluble, is easily separated by filtration, and the phosphate of soda remains in solution.

Mr. Funcke, of Linz, has discovered a still more œconomical and expeditious method. It consists in saturating the excess of lime in calcined bones with diluted sulphuric acid, and then dissolving the remaining phosphate of lime in nitric acid. To this solution he adds an equal quantity of sulphate of soda, and then recovers the nitric acid by distillation. The phosphate of soda is then separated from the sulphate of lime by the affusion of water and crystallization.

Phosphate of soda crystallizes in rhomboidal prisms, terminated by three-sided pyramids. Its taste resembles that of common salt. At 60° it is soluble in four parts of water, and at 212° in two. It effloresces in the air. By heat it undergoes the watery fusion, and at last melts into a white mass. It consists, according to Thenard, of 15 phosphoric acid, 19 soda, and 66 water of crystallization. It is decomposed by most of the salts having an earthy base.

MEDICAL USE.

Phosphate of soda was introduced into the practice of physic by the ingenious Dr. George Pearson of London. It possesses the same medical qualities as sulphate of soda, and the tartrate of potash and soda, being an excellent purgative, in the quantity

of an ounce or ten drachms; and has the peculiar advantage over these two salts, of being much less nauseous than they are. Its taste is extremely similar to that of common salt; and, when given in a bason of water-gruel, or veal broth, made without salt, it is scarcely perceptible by the palate; and consequently it is well adapted for patients whose stomachs are delicate, and who have an antipathy against the other salts. The only objection to its general use is the very great difference between its price and that of sulphate of soda; a difference which might certainly be diminished.

SULPHATE OF SODA, FORMERLY GLAUBER'S SALT. (Sulphas Sodæ, olim Sal Glauberi. E.)

Dissolve the acidulous salt which remains after the distillation of muriatic acid in water; and having mixed chalk with it, to remove the superfluous acid, set it aside until the sediment subsides; then evaporate the liquor decanted from them, and strain through paper, so that it may crystallize.

VITRIOLATED NATRON. (Natron Vitriolatum. L.)

Take of the salt which remains after the distillation of muriatic acid, two pounds;
——— distilled water, two pints and a half:
Burn out the superfluous acid with a strong fire in an open vessel; then boil it for a little in water: strain the solution, and set it by to crystallize.

SULPHATE OF SODA. (Sulphas Sodæ. D.)

Dissolve the salt, which remains after the distillation of muriatic acid, in a sufficient quantity of boiling water. Evaporate the filtered solution, and crystallize the salt by slow refrigeration.

The observations we made respecting the different methods followed by the colleges for extracting sulphate of potash from the residuum of the distillation of nitrous acid, apply in the present instance, except that the Edinburgh college do not preserve the superabundant acid, when present, by saturating it with carbonate of soda, but get rid of it by saturating it with carbonate of lime, with which it forms an insoluble sulphate of lime. In fact, the price of sulphate of soda is so very small, that it would be no œconomy to use carbonate of soda to saturate the superabundant acid.

By far the greatest part of the sulphate of soda is obtained from manufacturers as a result of processes performed for the

sake of other substances, as in the preparation of muriate of ammonia, oxygenized muriatic acid, &c. It may be œconomically obtained by making into a paste, with a sufficient quantity of water, eight parts of burnt gypsum, five of clay, and five of muriate of soda. This mixture is burnt in a kiln or oven, then ground to powder, diffused in a sufficient quantity of water, and, after being strained, is evaporated and crystallized.

Sulphate of soda crystallizes in six-sided prisms, terminated by dihedral summits. The crystals are often irregular, and their sides are usually channelled. Their taste is at first salt, and afterwards disagreeably bitter. They are soluble in 2·67 parts of water at 60°, and in 0·8 at 212°. In the air they effloresce. They undergo the watery fusion, and, in a red heat, melt. They consist of 23·52 sulphuric acid, 18·48 soda, and 58 water; when dried at 700°, of 56 acid, and 44 soda. It is decomposed by baryta and potash, and salts containing these bases, and by the salts of silver, mercury, and lead.

MEDICAL USE.

Taken from half an ounce to an ounce, or more, it proves a mild and useful purgative; and, in smaller doses, largely diluted, a serviceable aperient and diuretic. It is commonly given in solution, but it may also be given in powder after it has effloresced. In this form the dose must be reduced to one half.

TARTRITE OF POTASH AND SODA, FORMERLY ROCHELLE SALT. (Tartris Potassæ et Sodæ, olim Sal Rupellensis. E.)

It is prepared from the carbonate of soda and super-tartrate of potash, in the same manner as the tartrate of potash.

TARTARIZED NATRON. (Natron Tartarizatum. L.) TARTRATE OF SODA AND KALI. (Tartaras Sodæ et Kali. E.)

Take of carbonate of soda, twenty ounces;
——— crystals of tartar, in very fine powder, two pounds;
——— distilled water, boiling, ten pints:
Dissolve the carbonate of soda in the water, and gradually add the crystals of tartar: filter the liquor through paper; evaporate, and set aside to crystallize (by slow cooling, D.).

The tartaric acid, in several instances, is capable of entering into combination, at the same time, with two bases. In the present example, the superabundant acid of the super-tartrate of potash is neutralized with soda, and, in place of a mixture of

tartrate of potash and tartrate of soda, each possessing their own properties, there results a triple salt having peculiar properties.

The tartrate of potash and soda forms large and very regular crystals, in the form of prisms with eight sides, nearly equal, which are often divided longitudinally, almost through their axis. It has a bitter taste. It is soluble in about five parts of water, and effloresces in the air. It is decomposed by the strong acids, which combine with the soda, and separate super-tartrate of potash, and by baryta and lime. By heat its acid is destroyed. It consists of 54 tartrate of potash, and 46 tartrate of soda.

MEDICAL USE.

It was introduced into medical practice by M. Seignette, an apothecary at Rochelle, whose name it long bore. It is still frequently employed; and though less agreeable than the phosphate of soda, it is much more so than the sulphate of soda. It is less purgative than these, and must be given in larger doses.

OFFICINAL SWALLOW-WORT.

ASCLEPIAS VINCETOXICUM.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Nectaries* five, ovate, concave from the bottom, horn-shaped, and bent inwards.

Spec. Char: *Leaves* ovate, barbed at the base: *Stem* erect: *Umbels* proliferous.

DESCRIPTION.

Stalks about a foot in height, erect, above green, below purplish. Flowers white, arising in clusters at the axillæ of the leaves. Corolla divided into five segments. Follicles two, oblong, one-celled, one-valved. Seeds numerous, crowned with pappus.

HISTORY.

A native of Britain in the north, and cultivated in the gardens.

MEDICAL VIRTUE.

It is called Asclepian, from Ἀσκληπιός, Æsculapius, and Vincetoxicum, from *vincere* to conquer, and τοξικὸς, a Greek word signifying poison. Hence its high reputation when poisons

were so commonly administered; so that Hume mentions in his Essays, that in one province of Rome 3000 in one year were tried for this horrid crime; and the great were very lavish in rewarding physicians who were supposed to be in possession of any antidote to poison:—so dreadful is man to man! Hence the great Boerhaave in recording its virtues says: "Hæc radix dicitur vino infusa ut hausta venenum expellere, et cavere, ne assumptum venenum multum noceat. Folia in peste, rabie canina, et omnibus contagiosis morbis susceptis conducit." In remote practice it was employed in the cure of dropsy, and comes recommended by Paracelsus and Van Helmont; and in modern times by Hoffman, Stahl, and Bergius; but it is suspected by Haller as a dangerous remedy.

WILD ANGELICA.

ANGELICA SYLVESTRIS.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Fruit* somewhat round, angular, solid: *Styles* reflexed: *Corolla* equal: *Petals* incurved.

Spec. Char. *Leaves* equal, ovate-lanceolate, serrate.

DESCRIPTION.

Stalk several feet in height. Stem hollow. Leaves pinnated; pinnæ serrate, several, ending in an odd one. Flowers in large umbels. General involucre wanting.

HISTORY.

Grows in marshy woods and hedges, flowers in June and July.

MEDICAL VIRTUES.

The same as the former, but in rather a less degree.

SEA ERYNGO OR HOLLY.

ERYNGIUM MARITIMUM.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Flowers* capitate: *Receptacle* paleaceous.

SPEC. CHAR. *Leaves* radical, somewhat round, plicate, spinous: *Heads* pedunculate: *Paleæ* tricuspidate.

DESCRIPTION.

It rises from one to two feet in height. The leaves are roundish, plaited, firm, spiny like those of holly, marked with white reticulated veins, of a pale blueish green colour. The flowers are of a blue colour, and terminate the branches in round heads. The calyx consists of five erect sharp-pointed leaves. The corolla is composed of five petals, which turn inwards. The germen is beset with short hairs.

HISTORY.

It grows abundantly on the sea coasts, and flowers from July till October.

MEDICAL VIRTUE.

The root is mild and mucilaginous, and aromatic in a small degree. It is a mild balsamic pectoral, and enters as an ingredient into what is commonly called mild artificial asses' milk, which is made thus:—

MOCK ASSES' MILK.

Take an ounce of hartshorn shavings, put it into a quart of boiling barley water, boil it down to a pint, add two ounces of candied eryngo root, and a pint of new milk; boil it for a quarter of an hour, and strain it for use.

Another Method.—Boil in three pints of water, till half wasted, one ounce each, of eryngo root, pearl barley, sago, and rice; strain it off, put a table-spoonful of the mixture into a coffee-cup of boiling milk, so as to render it of the consistence of cream, and sweeten with loaf or Lisbon sugar to the taste.

WILD CARROT.

DAUCUS CAROTA.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Corolla* subradiate, all bisexual: *Corolla* rough with hairs.

SPEC. CHAR. *Seeds* hispid: *Petals* nerved underneath.

DESCRIPTION.

THIS plant rises about two feet. Leaves many times pinnate towards the root, hairy. Umbel composed of several radii, forming a flat surface on the top, but when the fruit ripens becomes concave, and drawn together. The general involucre consists of several leaves, which are cut into long narrow segments. The partial is more simple, consisting of strap-shaped leaflets. The seeds are two, assembled, convex, and covered with strong hairs.

HISTORY.

It grows wild in meadows and pastures, and flowers from June till August.

VIRTUES.

The seeds of this sort of carrot have a warm and not disagreeable taste, and are esteemed as stomachic and diuretic.

GARDEN CARROT.

DAUCUS SATIVA.

Class V. Pentandria. *Order* II. Digynia.

HISTORY.

THIS is only a variety of the last, and is the product of cultivation. It is too well known to need description.

MEDICAL USE.

It was not used for any medicinal purpose in this country, till about twenty years ago, when it was discovered that poultices made of this root grated, and applied to cancerous and old angry sores, removed their very offensive smell, and mended the discharge. The remarkable effects which these poultices at first produced, made practitioners for some time believe that they had discovered a remedy which would cure the cancer: further experiments, however, taught them, that although such poultices were of great service in promoting the cure of some foul sores, yet that they had not sufficient efficacy to cure the cancer; and that they only corrected the bad offensive smell, mended a little

the nature of the discharge, and procured ease, but had not power to stop its progress.

By the account given by Mr. Gibson, in the fourth volume of Medical Observations and Inquiries, it should seem that the efficacy of these poultices, when applied to old sores, is greatly increased by the patient using freely for drink an infusion of malt, or wort.

The seeds of this sort of carrot are carminative and diuretic.

GIGANTIC FENNEL.

FERULA ASSAFŒTIDA.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Fruit* oval, compresso-plane, three striæ on each side.

Spec. Char. *Leaves* alternate, sinuate, obtuse.

DESCRIPTION.

This rises two feet. It abounds with a milky juice. Stem is erect, simple, straight. Leaves near two feet long, bipinnate, pinulæ alternate. Umbels plano-convex, terminal, composed of many radii. Seeds oval, flat, marked with three longitudinal lines.

HISTORY.

The plant which furnishes assafœtida is perennial, and a native of Persia. It has, however, borne fertile seeds in the open air in the botanical garden of Edinburgh. The gum-resin is procured from the roots of plants which are at least four years old. When the leaves begin to decay, the stalk is twisted off, and the earth removed from about their large tapering roots. The top of the root is some time afterwards cut off transversely, and forty-eight hours afterwards the juice which was exuded is scraped off,

and a second transverse section is made. This operation is repeated until the root be entirely exhausted of juice. After being scraped off, the juice is exposed to the sun to harden.

It is brought to us in large irregular masses, composed of various little shining lumps or grains, which are partly of a whitish colour, partly reddish, and partly of a violet hue. Those masses are accounted the best which are clear, of a pale reddish colour, and variegated with a great number of elegant white tears.

This drug has a strong fœtid smell, somewhat like that of garlic; and a bitter, acrid, biting taste. It loses some of its smell and strength by keeping, a circumstance to be particularly regarded in its exhibition.

Neumann got from 1920 parts, 1350 alcoholic extract, and afterwards 190 watery; and inversely, 550 watery. The smell resides entirely in an essential oil, which rises in distillation both with alcohol and water. Neumann got more than 60 from 1920 grains.

MEDICAL USE.

It is the most powerful of all the fœtid gums, and is a most valuable remedy. It acts as a stimulant, antispasmodic, expectorant, emmenagogue, and anthelmintic. Its action is quick and penetrating.

It is often serviceable,

1. In croup.
2. In dyspepsia, amenorrhœa, and chlorosis.
3. In asthma, dyspnœa, and hysteria.
4. In tympanites and worms.

It is exhibited,

1. In substance, in the form of pills, in doses of from five to twenty grains, either alone, or combined with bitter extracts or purgatives.
2. Dissolved in some simple distilled water.
3. Dissolved in alcohol.
4. In the form of clyster, to the extent of about two drachms.

PREPARATIONS.

Emulsion of Gum Ammoniac. (Lac Ammoniaci. L. D.)

Take of gum ammoniac, two drachms (one drachm, D.);
——— distilled water, half a pint (pennyroyal water, eight ounces, D.):

Rub the gum resin with the water, gradually poured on, until it becomes an emulsion.

Emulsion of Assafœtida. (Lac Assæfœtidæ. L. D.)

In the same manner may be made an emulsion of assafœtida, and the rest of the gum resins.

The lac ammoniaci is employed for attenuating tough phlegm, and promoting expectoration in humoral asthmas, coughs, and obstructions of the viscera. It may be given to the quantity of two spoonfuls twice a day.

It answers the same purpose as assafœtida in substance, and on some occasions is a more convenient, though a very disagreeable mode of exhibiting it.

Tincture of Assafœtida. (Tinctura Ferulæ Assæfœtidæ. E. Tinctura Assæfœtidæ. D. L.)

Take of assafœtida, four ounces;
——— alcohol, two pounds and a half, E. (two pints, L.):
Digest for seven days (six days, L.), and strain through paper.

Dub.

Take of assafœtida, four ounces;
——— rectified spirit of wine, two pints;
——— water, eight ounces:
Add the spirit to the assafœtida, triturated with the water, and digest for eight days; then strain.

This tincture possesses the virtues of the assafœtida itself, and may be given in doses of from ten drops to fifty or sixty.

Purging Clyster. (Enema Catharticum. D.)

Take of manna, one ounce;
Dissolve in ten ounces, by measure, of
Compound decoction of chamomile; then add of
Olive oil, one ounce;
Sulphate of magnesia, half an ounce:
Mix them.

Fœtid Enema (Enema Fœtidum. D.)

Is made by adding to the former two drachms of the tincture of assafœtida.

These are very useful extemporaneous preparations. In cases of hysterics and convulsions the latter is of singular use.

Opiate Enema.

Take of milk of assafœtida, eight ounces;
——— tincture of opium, one drachm:
To be injected at bed-time. This is useful in disorders of the rectum, which induce insufferable pain.

Fœtid Spirit of Volatile Alkali. (Alcohol Ammoniatum Fœtidum. E.)

Take of spirit of ammonia, eight ounces;
——— assafœtida, half an ounce:
Digest, in a close vessel, twelve hours; then distil off, with the heat of boiling water, eight ounces.

Fœtid Spirit of Ammonia. (Spiritus Ammoniæ Fœtidus. L.)

Take of proof spirit, six pints;
——— sal ammoniac, one pound;
——— assafœtida, four ounces;
——— potash, one pound and a half:
Mix them, and draw off, by distillation, five pints, with a slow fire.

Volatile spirits, impregnated with different fœtids, have been usually kept in the shops as anti-hysterics: the ingredient here chosen is the best calculated of any for general use. The spirit is pale when newly distilled, but acquires a considerable tinge by keeping. The dose is a tea-spoonful in some water during hysterics, and the same to be taken occasionally.

Plaster of Assafœtida. (Emplastrum Assæfœtidæ. E.)

Take of plaster of semi-vitrified oxide of lead,
——— assafœtida, each two parts;
——— galbanum,
——— yellow wax, each one part:
This plaster is applied to the umbilical region, or over the whole abdomen, in hysteric cases, and sometimes with good effect.

Pills of Aloes and Assafœtida. (Pilulæ Aloes et Assafœtidæ. E.)

Take of socotrine aloes, in powder,
——— assafœtida,
——— soap, equal parts:
Form them into a mass with mucilage of gum arabic.

These pills, in doses of about ten grains, twice a day, produce the most salutary effects in cases of dyspepsia, attended with hysteria, flatulence, and costiveness.

Compound Pills of Assafœtida. (Pilulæ Assæfœtidæ Compositæ. E.) Compound Pills of Myrrh. (Pilulæ Myrrhæ Compositæ. D.)

Take of assafœtida,
——— galbanum,
——— myrrh, each eight parts (one ounce, D.);
——— rectified oil of amber, one part (half a drachm, D.):
Beat them into a mass with simple syrup. The dose is ten grains twice a day in hysteria and asthma.

PRESCRIPTION.

℞. Take of milk of assafœtida, five ounces and a half;
——— compound spirit of lavender, half an ounce;
——— compound spirit of ammonia, two drachms:
The dose is two large table spoonfuls in a little water four times a day in asthma.

LOVAGE-LEAVED BUBON.

BUBON GALBANUM.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* ovate, striate, villous.

SPEC. CHAR. *Leaves* sharply-serrate, rhomboidal, subtrilobed.

DESCRIPTION.

A SHRUB rising several feet. Leaves compound, rising from the sheaths of the stem, subtripinnated. Simple leaves rhomboidal, acute, of a sea-green colour, veined, irregularly serrate, at the base entire; some of the leaves upon the upper branches are somewhat wedge-shaped. The principal umbel terminates the stem, composed of numerous radii; the lateral are few, and grow upon slender branches. Leaflets of the general involucre about twelve, narrow, lanceolate, of the partial six, of the same shape, and spreading. Seeds two, oval, with smooth uneven surfaces, and marked with three elevated lines.

HISTORY.

This plant is perennial, and grows in Africa. It abounds with a milky juice, which sometimes exudes from the joints of the old plants, but is more frequently obtained by cutting them across some inches above the root. The juice which flows from the wound soon hardens, and is the galbanum which is brought to us from Syria and the Levant.

The best sort of galbanum consists of pale-coloured pieces, about the size of a hazel-nut, which, on being broken, appear to be composed of clear white tears, of a bitterish acrid taste, and a strong peculiar smell. But it most commonly occurs in agglutinated masses, composed of yellowish or reddish and clear white tears, which may be easily torn asunder, of the consistence of firm wax, softening by heat, and becoming brittle by cold, and mixed with seeds and leaves. What is mixed with sand, earth, and other impurities, and is of a brown or blackish colour, interspersed with no white grains, of a weak smell, and of a consistence always soft, is bad.

Galbanum is almost entirely soluble in water, but the solution is milky; but neither wine nor vinegar dissolves it perfectly. Alcohol, according to Hagen, has very little action upon it. It is not fusible; but furnishes a considerable proportion of essential oil when distilled with water. Neumann obtained by distillation with water six drachms of oil, besides what remained dissolved in the water. The watery extract amounted to about three ounces. It was somewhat nauseous, but could not have been recognised as a preparation of galbanum. From the same quantity alcohol extracted upwards of nine ounces and a half of a hard brittle insipid inodorous substance (resin?).

MEDICAL VIRTUES.

Galbanum, medicinally considered, may be said to hold a middle rank between assafœtida and ammoniacum; but its fœtidness is very inconsiderable, especially when compared with the former; it is therefore accounted less antispasmodic, nor is it supposed to affect the bronchial glands so much as to have expectorant powers equal to those of the latter: it has the credit, however, of being more useful in hysterical disorders, and of promoting and correcting various secretions and uterine dis-

charges. Externally galbanum has been applied to expedite the suppuration of indolent tumours, and as a warm plaster.

PREPARATIONS.

Compound Pills of Galbanum. (Pilulæ Galbani Compositæ. L.)

Take of galbanum,
——— opoponax,
——— myrrh,
——— sagapenum, of each one ounce;
——— assafœtida, half an ounce;
——— syrup of saffron, as much as is sufficient:
Beat them together.

These pills are designed for anti-hysterics and emmenagogues, and are very well calculated for answering those intentions: half a scruple, a scruple, or more, may be taken every night, or oftener.

Tincture of Galbanum. (Tinctura Galbani. L. D.)

Take of galbanum, cut into small pieces, two ounces;
——— proof spirit of wine, two pints:
Digest with a gentle heat for seven days, and strain.

This tincture, though not so powerful, is less nauseous than that of assafœtida, and therefore in some cases may be preferable. The dose is from forty to fifty drops in some cold water, occasionally, to prevent hysteria.

Gum Plaster. (Emplastrum Gummosum. E.)

Take of plaster of semi-vitrified oxide of lead, eight parts;
——— gum ammoniacum,
——— galbanum,
——— yellow wax, each one part.

Plaster of Galbanum. (Emplastrum Galbani. D.)

Take of plaster of litharge, two pounds;
——— galbanum, half a pound;
——— yellow wax, sliced, four ounces:
Add the plaster and wax to the galbanum, melted, and then melt the whole together, with a moderate heat. These plasters, either of themselves, or mixed with Burgundy pitch, are spread on leather, and applied over the chest.

Of the same kind is the

Cummin Plaster. (Emplastrum Cumini. L.)

Take of cummin seeds,
——— caraway seeds,
——— bay berries, of each three ounces;
——— Burgundy pitch, three pounds;
——— yellow wax, three ounces:
Melt the pitch and wax together, and mix with them the rest of the ingredients, powdered, and make a plaster.

This plaster has been recommended as a moderately warm discutient, and is directed by some to be applied to the hypogastric region, for strengthening the viscera, and expelling flatulencies.

PRESCRIPTION.

℞. 1. Take of the compound pills of galbanum, two drachms;
——— rust of iron, four scruples;
——— syrup of ginger, as much as is sufficient:
Form a mass, which is to be made into forty pills, of which take four at twelve at noon, and at seven in the evening, every day, drinking after them half a wine-glass of Port wine. Excellent in hysteric affections.

CORIANDER.

CORIANDRUM.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Corolla* radiate: *Petals* inflexo-emarginate: *Involucre* universal, monophyllous, partial, occupying one half: *Fruit* spherical.

SPEC. CHAR. *Fruit* globular.

DESCRIPTION.

THIS plant rises to two feet high. Leaves variously pinnated. The flowers are white or reddish, and placed on terminal umbels. The partial are composed of more radii than the general, and each one is furnished with an involucre of three narrow leaves, but the general is composed of a single leaflet. The fruit is globular, and divides into two hemi-spherical concave leaves.

HISTORY.

It is a native of the south of Europe, where it is often a troublesome weed. From being cultivated here, it is often found wild in the fields.

MEDICAL VIRTUES.

Coriander is a warm aromatic seed, and of the same nature, and used for the same purposes, as caraways. They are directed in the *infusum amarum* (bitter infusion), and *infusum sennæ tartarizatum* (tartarized infusion of senna), with the view, as Cullen observes, of adding warmth to the medicine. "The seeds," says this professor, "infused along with senna more powerfully correct the odour and taste of the medicine than any other aromatic I have employed; and are equally successful in obviating costiveness, which senna is very apt to produce."

CREEPING WATER-PARSNIP.

SIUM NODIFLORUM.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* subovate, striate: *Involucre* polyphyllous: *Petals* cordate.

SPEC. CHAR. *Leaves* pinnate: *Umbels* axillary, sessile.

DESCRIPTION.

It rises near a foot in height. Leaves pinnate, ending in an odd one, pinnæ sawed at the edge, and sessile. Flowers stand in axillary umbels, composed of six to nine rays, and an equal number of partial radii. No general involucre, the partial consists of five, six, or seven pointed leaflets. Fruit divisible into two seeds, flat on one side, convex on the other.

HISTORY.

This plant is perennial, and grows wild in rivers, ditches, and marshes in England. It flowers in July and August.

MEDICAL VIRTUES.

The Edinburgh Pharmacopœia says of the sium only, "It was formerly alleged to be not only diuretic, but also emmenagogue and lithontriptic. It is now scarcely employed." Let us not, however, hastily discard any one remedy. Our countryman Ray (Synop. p. 213), and Beirie (Dict. de la Mat. Med.), recommend strongly the sium in cutaneous eruptions; and the late learned and ingenious Dr. Withering relates the case of a young lady, six years old, who was cured of an obstinate cutaneous disease by taking three large spoonfuls of the juice twice a day; and I have repeatedly given to adults three or four ounces every morning in similar complaints with the greatest advantage. It is not nauseous, and children take it readily if mixed with milk. In such quantities it neither affects the head, the stomach, or the bowels.

COMMON MASTERWORT.

IMPERATORIA OSTRUTHIUM.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* subrotund, compressed, gibbous in the middle, bound at the margin: *Petals* inflexo-marginate.

SPEC. CHAR. None, as this is at present the only species.

DESCRIPTION.

THIS plant rises to two feet. The root is perennial, large, succulent, tapering. The stalk is striated, and round. The leaves are three together, and the terminal leaf is often cut into three lobes. These are placed on a long footstalk, which terminates in a sheathing covering to the stalk. There is no general involucre, the partial is composed of one or two leaves.

HISTORY.

Masterwort may be considered as a native of Scotland, being found there by Mr. Lightfoot. It is frequently cultivated in gardens, but the root so produced is greatly inferior to that growing in the south of Europe, especially in mountainous

situations; hence the shops are supplied with it from the Alps and Pyrenees.

VIRTUES.

This plant is omitted in our Pharmacopœias, notwithstanding its boastful name,—"Imperatoria ob raras et præstantes facultates nominata fuit,"—(Bauhin. Pin. l. c.) and although Hoffmann calls it a divine remedy, "remedium divinum,"—Officin. b. ii. c. 116. Having so few plants accepted, we should be unwilling to part with this without further inquiry. Alston says its root is aromatic, and leaves a pungency in the mouth for more than an hour. Haller relates, that it is beneficial in diseases of the chest arising from a load of mucus, and of course in the pituitous asthma; and in those diseases arising from defective circulation, as chlorosis and dropsy; and it has succeeded in a quartan ague even after the cinchona had failed. What is more extraordinary, he adds, employed in the form of a clyster it facilitates parturition; the same also when taken inwardly. It expels worms. A drachm of the root in substance, and a drachm in infusion, is the quantity directed to be taken four times a day.

ROUGH PARSNIP.

OPOPONAX.

PASTINACA OPOPONAX.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* elliptic, compresso-plane: *Petals* involute, entire.

SPEC. CHAR. *Leaves* pinnate: *Leaflets* on the upper part at the base, as if cut out.

DESCRIPTION.

It rises seven or eight feet. The leaves are pinnated, consisting of several pairs of pinnæ, which are oblong, serrated, veined, and as if unformed at the base. The flowers are small, of a yellowish colour, and terminate the stem and branches in umbels. No involucres, either general or partial.

HISTORY.

This plant is perennial, and grows wild in the south of Europe; but the gum resin, which is said to be obtained by wounding the stalk or root, is brought from the Levant and East Indies, sometimes in round drops or tears, but more commonly in irregular lumps, of a reddish yellow colour on the outside, with specks of white, inwardly of a paler colour, and frequently variegated with large white pieces. It has a peculiar strong smell, and a bitter, acrid, somewhat nauseous, taste.

Neumann got from 480 parts, 166 alcoholic, and afterwards 180 watery extract; and inversely, 226 watery, and 60 alcoholic. Both the water and alcohol distilled from it were impregnated with its flavour. It forms a milky solution with water, and yields a little essential oil on distillation.

Opoponax has been long employed by physicians, and esteemed for its attenuating, deobstruent, and aperient virtues; but as it is commonly prescribed in combination with other medicines, these qualities are by no means ascertained, nor do its sensible qualities indicate it to be a medicine of much power. Dr. Cullen classes it with the antispasmodics; it is, however, less fœtid than galbanum, though more so than ammoniacum, and therefore may be supposed to have some affinity to an union of these two. It has commonly been given in hypochondriacal affections, visceral obstructions, menstrual suppressions, and asthmas, especially when connected with a phlegmatic habit of body. It enters into the following composition, COMPOUND PILLS OF GALBANUM. (Pilulæ Galbani Compositæ. L.)—Vide p. 292.

CARAWAYS.

CARUM CARUI.

Class V. Pentandria. *Order* II. Monogynia.

Essent. Gen. Char. *Fruit* ovato-oblong, striate: *Involucre* monophyllous: *Petals* keeled, inflexo-emarginate.

DESCRIPTION.

It rises to two or three feet. The leaves are long, and subdivide into numerous pinnulæ or segments, which are narrow, pointed, of a dark green colour. The flowers grow in terminal umbels. It has a terminal and partial umbel. The seeds are two, naked, brown, striated, and of an oblong shape.

HISTORY.

This plant is a native of Britain, and grows in meadows and low grounds; but the seeds of the cultivated plant are said to be larger, more oily, and of a more agreeable flavour than those of the wild plant, which are hot and acrid. It flowers in May and June.

MEDICAL VIRTUES.

The caraway is a pleasant, hot, aromatic seed, abounding with an essential oil, and containing gummy and resinous parts.

Spirits draw a tincture that has the taste, but not a very strong flavour; and water extracts a tincture that has a strong flavour, and but a weak taste. They are principally used as stomachic and carminative; and are frequently mixed with infusions of senna, to correct its griping quality.

There is an essential oil ordered to be drawn from them, which is given from three or four to ten drops.

And we have an *aq. seminum carui* drawn with spirits, which may be used from a drachm to half an ounce, as a cordial spirituous water.

PREPARATION.

Spirit of Caraway. (Spiritus Cari Carui. E.)

Take of caraway seeds, bruised, half a pound;
——— diluted alcohol, nine pounds:
Macerate for two days in a close vessel; then pour on as much water as will prevent empyreuma, and draw off, by distillation, nine pounds.

SMALL BURNET SAXIFRAGE.

PIMPINELLA.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* ovate-oblong: *Petals* inflexed: *Stigmata* subglobose.

SPEC. CHAR. *Leaves* pinnate: *Leaflets* radical subrotund, upper narrower.

DESCRIPTION.

IT rises a foot in height. The leaves are variously shaped, pinnated. The flowers stand upon terminal umbels. There is no involucre. The seeds are naked, furrowed, egg-shaped.

HISTORY.

It is a native of this country, and grows in dry meadows and pastures. The flowers appear in August and September.

MEDICAL VIRTUES.

Bergius states the virtues of this root to be resolvent, diaphoretic, stomachic, and diuretic. It is recommended by several writers as a stomachic, and in all cases where pituitous humours are thought to prevail, as asthmas, dropsies, catarrhal coughs, hoarsenesses, and what has been called angina serosa; and by Hoffmann it is said to be an excellent emmenagogue. In the way of gargle it has been employed for dissolving viscid mucus, and to stimulate the tongue when that organ becomes paralytic. Chewing the root, by drawing off the saliva from the gums, immediately relieves the tooth-ach. The dose inwardly is a scruple in substance, and in infusion two drachms.

ANISE.

PIMPINELLA ANISUM.

Class I. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* ovate-oblong: *Petals* inflexed: *Stigmata* subglobular.

SPEC. CHAR. *Leaves* pinnated, leaflets radical subrotund, above linear.

DESCRIPTION.

THIS plant rises to a foot in height. The leaves are on the upper part of the stem divided into narrow pinnated segments, but at the bottom roundish, separated into three lobes, sometimes fives, standing on long footstalks. The flowers are small, white, and placed in terminal umbels. No involucres.

HISTORY.

Anise is an annual umbelliferous plant, growing wild in Crete, Syria, and other places of the east. It is cultivated in some parts of France, Germany, and Spain, and may be raised also in England; the seeds brought from Spain, which are smaller than the others, are preferred.

Aniseeds have an aromatic smell, and a pleasant warm taste, accompanied with a degree of sweetness. Water extracts very little of their flavour; rectified spirit the whole.

PREPARATIONS.

ESSENTIAL OIL OF ANISE. (Oleum Volatile Pimpinellæ Anisi.)

This, like other essential oils, is obtained by distillation with an alembic, and a large refrigeratory. Water must be added to the materials in sufficient quantity to prevent their burning, and to macerate them before the distillation.

The water which comes over with the oil during the distillation ought to be kept for use.

Anise is a seed which has an aromatic smell and a pleasant, warm, sweetish taste; it has been used as a carminative, a cordial, and stomachic, and for strengthening the viscera: the essential oil is amongst the mildest of this kind we have, and may be given from three to twenty drops, though common practice seldom goes beyond eight or ten.

COMPOUND SPIRIT OF ANISEED. (Spiritus Anisi Compositus. L. D.)

Take of aniseed,
——— angelica seed, of each, bruised, half a pound;
——— proof spirit, one gallon;
——— water, sufficient to prevent empyreuma:
Draw off one gallon by distillation.

This compound spirit, like the simple ones, is an agreeable cordial; indeed they are too agreeable, for by some they are so often resorted to, on the slightest sensation of flatulence in the stomach, that their use is attended with all the pernicious consequences of dram-drinking. It may be added to purgatives, to hinder their producing colicy pains in the bowels, in the dose of from one to two drachms, or taken alone in some water to expel flatulency. Hence Hoffman calls these seeds *Solamen intestinum.*

ANISEED WATER. (Aqua Anethi.)

Take of bruised dill-seeds, a pound;
——— of water, as much as is sufficient to prevent burning:
Distil off a gallon.

This is given to infants to expel wind, and often mixed with their food: but such cordials begun early often induce an enlargement of the liver, and dreadful atrophy. The common cause of wind is a diseased state of the bile, to be obviated by a little magnesia, with a very small quantity of rhubarb, to be taken night and morning.

This is said to augment in women the quantity of milk, and restore it when it has disappeared.

COMMON PARSLEY.

APIUM PETROSELINUM.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* ovate, striate: *General Involucre* monophyllous: *Petals* equal.

SPEC. CHAR. *Leaves* cauline linear: *Partial Involucre* six or eight leaflets.

DESCRIPTION.

IT rises two feet in height. The radical leaves are without footstalks, compound, pinnated in threes. The leaflets are smooth, veined, divided into three lobes, and notched at the margin. The flowers are small, of a yellow colour, placed on terminal umbels. The leaves of the general involucre vary from culture. Of the partial usually six or eight. It is best distinguished from all other umbelliferous plants by means of the smell. It may be discriminated from the fool's parsley by the latter having a partial involucre consisting of three long leaflets.

HISTORY.

It is a native of the south of Europe, and is naturalized to this climate, and very generally cultivated for culinary purposes.

MEDICAL VIRTUES.

The root is said to be diuretic, and decoctions of it are often used in cases of gravel, and where there is a scarcity or difficulty in passing water. The seeds are slightly aromatic, and hence carminative; but the whole plant merits rather to be mentioned as a culinary than a medicinal plant.

SWEET FENNEL.

ANETHUM GRAVEOLENS.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Fruit* subovate, compressed, striate: *Petals* involute, entire.

SPEC. CHAR. *Fruit* ovate.

DESCRIPTION.

It rises four feet. The leaves stand upon sheathy footstalks, and are doubly pinnate, pinnæ linear pointed. Flowers on terminal umbels, of a pale yellow. No general or partial involucre. Seeds two, ovate, flat, striated, and surrounded with a membranous margin.

HISTORY.

This plant is a native of Spain and Portugal, and is perfectly naturalized to this climate. It flowers in June and July.

MEDICAL VIRTUES.

The seeds and the plant itself were formerly much used in medicine, and from the time of Dioscorides have been esteemed

for their carminative and hypnotic powers, and therefore have been recommended in flatulent colics, and certain dyspeptic symptoms proceeding from a laxity of the stomach. They are also said to be more effectual than the other seeds of this class in promoting the secretion of milk. At this time, however, the seeds of dill are seldom employed, though a simple distilled water prepared from them is directed both by the London and Edinburgh Pharmacopœias.

FINE-LEAVED WATER-HEMLOCK.

PHELLANDRIUM AQUATICUM.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Floscules* of the disk less: *Fruit* ovate, smooth, crowned by a perianth and pistillum.

Spec. Char. Ramifications of the *leaves* diverging.

DESCRIPTION.

It rises two feet in height. The leaves are triply pinnated, ramifying at right angles. Leaflets irregularly pinnatifid. Leaves under the water filiform. Flowers on terminal umbels. General umbel none. Partial of seven leaves. Flowers in the centre of each umbel smaller than the outer ones. Fruit ovate, smooth, divisible into two parts or seeds.

HISTORY.

This plant grows in rivers, ditches, and pools, and flowers in June or July. It is generally supposed to possess deleterious qualities. Horses, on eating it, are said to become paralytic; but this effect should not be ascribed to the phellandrium, but to an insect which resides within its stalks, viz. the *Curculio paraplecticus*

MEDICAL VIRTUES.

The seeds of the plant, however, according to Dr. Lange, when taken in large doses, produce a remarkable sensation of weight in the head, accompanied with giddiness, intoxication, &c., and therefore may be deemed capable of proving an active medicine. They are oblong, striated, of a greenish yellow, about the size of those of dill, and manifesting an aromatic acrid taste, approaching nearly to that of the seeds of lovage. Distilled with water they yield an essential oil, of a pale yellow colour, and of a strong penetrating smell. One pound of the seeds affords an ounce of watery extract, but nearly double this quantity of spirituous extract, of which more than three drachms consists of resin.

Pliny states the seeds of phellandrium to be an efficacious medicine in calculous complaints, and disorders of the bladder; and in this opinion he is followed by Dodonæus, who mentions them also as possessing diuretic and emmenagogue powers. But on these authorities little reliance is to be placed; so that the efficacy of this plant rests chiefly on the testimonies of Ernstingius and Lange, by whom various cases of its successful use are published, especially in wounds and inveterate ulcers of different kinds, and even in cancers; also in phthisis pulmonalis, asthma, dyspepsia, intermittent fevers, &c.

About two scruples of the seed, two or three times a day, was the ordinary dose given.

Though the disorders here noticed are so multifarious and dissimilar as to afford no satisfactory evidence of the medicinal qualities of these seeds, yet they appear to us well deserving of further investigation, according to the maxim—"Ubi virus ibi virtus."

HEMLOCK WATER-DROPWORT.

ŒNANTHE CROCATA.

Class V. Pentandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Floscules* unequal: those in the disk sessile, sterile: *Fruit* crowned by the calyx and pistillum.

SPEC. CHAR. *Leaves* all multifid, obtuse, nearly equal.

DESCRIPTION.

It rises two or three feet in height. Leaves are simple, and doubly pinnate. Smaller pinnæ wedge-shaped, jagged at the edges, larger pinnæ three-lobed, indented. Flowers in umbels spreading, somewhat globular. No general involucre. Partial composed of many leaves. Fruit oblong, striated, divisible into two parts, which are convex on one side and flat on the other.

HISTORY.

It is a native of England, and grows on the banks of rivers and in ditches; flowers in June and July.

MEDICAL VIRTUES.

We are sorry we have to record it rather as a powerful poison than as medicine. Its root, which is not unpleasant to the taste, is, by Dr. Poultney, esteemed to be the most deleterious of all the vegetables which this country produces.

Mr. Howell, surgeon at Haverfordwest, relates, that "eleven French prisoners had the liberty of walking in and about the town of Pembroke; three of them, being in the fields a little before noon, dug up a large quantity of this plant, which they took to be wild celery, to eat with their bread and butter for dinner. After washing it, they all three ate, or rather tasted, of the roots. As they were entering the town, without any previous notice of sickness at the stomach, or disorder in the head, one of them was seized with convulsions. The other two ran home, and sent a surgeon to him. The surgeon endeavoured first to bleed, and then to vomit him; but those endeavours were fruitless, and he died presently. Ignorant of the cause of their comrade's death, and of their own danger, they gave of these roots to the other eight prisoners, who all ate some of them with their dinner. A few minutes afterwards the remaining two, who gathered the plants, were seized in the same manner as the first; of which one died; the other was bled, and a vomit with great difficulty forced down, on account of his jaws being as it were locked together. This operated, and he recovered, but was some time affected with dizziness in his head, though not sick or the least disordered in his stomach. The other eight, being bled and vomited immediately, were soon well."

At Clonmell, in Ireland, eight boys, mistaking this plant for water-parsnip, ate plentifully of its roots: about four or five hours after, the eldest boy became suddenly convulsed, and died; and before the next morning four of the other boys died in a similar manner. Of the other three, one was maniacal several hours, another lost his hair and nails, but the third escaped unhurt.

Stalpaart vander Wiel mentions two cases of the fatal effects of this root; these, however, were attended with great heat in the throat and stomach, sickness, vertigo, and purging. They both died in the course of two or three hours after eating the root.

Allen, in his *Synopsis Medicinæ*, also relates that four chil-

dren suffered greatly by eating this poison. In these cases great agony was experienced before the convulsions supervened; vomitings likewise came on, which were encouraged by large draughts of oil and warm water, to which their recovery is ascribed.

The late sir William Watson, who refers to the instances here cited, also says that a Dutchman was poisoned by the leaves of the plant boiled in pottage.

It appears from various authorities that most brute animals are not less affected by this poison than man; and Mr. Lightfoot informs us, that a spoonful of the juice of this plant given to a dog, rendered him sick and stupid; but a goat was observed to eat the plant with impunity.

The great virulence of this plant has not, however, prevented it from being taken medicinally. In a letter from Dr. Poultney to sir William Watson, we are told that a severe and inveterate cutaneous disorder was cured by the juice of the root, though not without exciting the most alarming symptoms. Taken in the dose of a spoonful, in two hours afterwards the head was affected in a very extraordinary manner, followed with violent sickness and vomiting, cold sweats and rigors; but this did not deter the patient from continuing the medicine, in somewhat less doses, till it effected a cure.

WATER HEMLOCK.

CICUTA VIROSA.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Fruit* subovate, sulcate.

Spec. Char. *Umbels* terminal: *Petals* marginate, obtuse.

DESCRIPTION.

Rises four feet in height. Leaves pinnated; leaflets usually placed in threes, spear-shaped, serrate, serratures white at the point. Flowers in large compact umbels. Flowers all uniform, fertile. Fruit egg-shaped, divisible into two seeds.

HISTORY.

This poisonous plant grows on the borders of pools and rivers, and flowers in July and August.

MEDICAL VIRTUES.

It appears from Bergius, that water-hemlock, in its dried state, may be taken in a considerable quantity without producing

any bad effect; but of the fatal effects of its root when fresh, numerous instances are recorded. Of two boys and six girls, who ate of this root for that of parsnip, the greater part died in a short time afterwards, those only escaping who were enabled to discharge it by vomiting. The symptoms it produced were intoxication, vertigo, great heat and pain in the stomach, convulsions, and even epilepsy, distortions of the eyes, vomiting or retching, a discharge of blood from the ears, swelling of the abdomen, hiccup, spasms, &c. In the case of a man who had eaten of this poisonous root, we are told the symptoms were vertigo, succeeded by delirium, with constant heat at the stomach, and inextinguishable thirst: these symptoms were of long continuance, and followed by an erysipelatous tumour of the neck.

To cite all the instances related of the deleterious effects of this root would be unnecessary, as those here stated from Wepfer will sufficiently show the train of symptoms which usually follow the taking of this poison. It may be observed, however, that in most of the cases in which it proved fatal, the patients died in a convulsed or epileptic state, and that whenever the root was rejected by vomiting, only a slight degree of stupefaction was for a few hours experienced.

On examination of the bodies of those who perished by eating this root, we are told that the stomach and intestines were discovered to be inflamed, and even in a gangrenous or eroded state, and the blood-vessels of the brain much distended.

To several brutes this plant has likewise proved mortal; but the facts upon this point are somewhat vague and various. Though said to be a fatal poison to cows, it is eaten with impunity by goats and sheep.

As an internal medicine the Cicuta aquatica is universally superseded by the common hemlock; but externally employed in the way of a poultice, it is said to afford relief in various fixed pains, especially those of the rheumatic and arthritic kind.

COMMON HEMLOCK.

CONIUM MACULATUM.

Class V. Pentandria. *Order* II. Digynia.

Essent. Gen. Char. *Involucella* dimidiate, subtriphyllous: *Fruit* subglobular, having five striæ, crenate on both sides.

DESCRIPTION.

The root is biennial, tapering, sometimes forked, eight or ten inches long, and about the thickness of a finger: the stalk is five or six feet high, round, shining, beset with brown and purplish specks; towards the top branched and striated; near the bottom about three inches in circumference, and covered with a blueish exudation, appearing like a fine powder: the lower leaves are very large, tripinnated, of a shining green colour, standing upon long, striated, concave footstalks, which proceed from the joints of the stem; the upper and smaller leaves are bipinnated, and placed at the divisions of the branches:

the flowers are produced in umbels, which are both universal and partial, and composed of several striated radii. The universal involucrum consists of five or seven leaves, these are lanceolated, whitish at the margin, and bent downwards; the partial involucrum is composed of three or four leaves, which are placed on the outer side of the radial stalk; the petals are five, oval, white, and curl inwards at their points; the stamina are five, white, about the length of the corolla, and crowned with whitish antheræ; the styles are two, filiform, inclining outwards, and terminated by round stigmata; the fruit is oval, striated, consisting of two irregularly hemispherical striated brownish seeds.

The hemlock is obviously distinguished from our other umbelliferous plants by its large and spotted stalk, by the dark and shining green colour of its bottom leaves, and particularly by their disagreeable smell when bruised, and which, according to Stöerck, resembles that of mice.—Curt. Flor. Lond. The Chærophyllum bulbosum has a spotted stem, but its swelled joints, and rough seeds, distinguish it from the hemlock.

HISTORY.

It is common near waste grounds and dunghills, and flowers in July.

MEDICAL VIRTUE.

This plant, like the former, is a most deadly poison, and the Athenians often made those condemned to death drink a cup-full of its juice to put an end to life. The ancients, however, believed it to be a good discutient and anodyne external application, and used it both in fomentations and poultices; and it has been continued to be employed as an external application to this day.

Ray and others mention the powder of the root of the hemlock as an efficacious remedy in scirrhi of the liver and spleen; but none of the modern physicians were bold enough to give either it, or any of its preparations, as a medicine, till in the year 1760, that Dr. Stöerck, of Vienna, published a treatise in which he mentions his having cured a number of cancers by means of an extract made with the juice of the leaves, which he gave from a few grains to a drachm or more in the day.

Immediately on the arrival of this publication in Great Britain, large quantities of the extract, made according to Dr. Stöerck's directions, were prepared by private apothecaries, and at most hospitals within the kingdom; and practitioners con-

gratulated each other on a remedy for this most terrible distemper having been at last discovered. But, alas! how were they disappointed when they found, after the cicuta had been administered to many hundreds of unhappy patients, not one true cancer had been cured by any practitioner whatever.

Many hundred pounds weight of this extract were made, and given to patients labouring under various disorders, in the space of the last twenty-five years. "The following are the principal observations that I made," says Dr. Donald Monro, "on the effects of this medicine during that period.

"I did not see, nor hear, of its having cured one true cancer, either occult or ulcerated. It sometimes alleviated the pain, and in some few cases it was imagined to have lessened the tumor a little, on first using; but this effect soon ceased, and the tumor continued to increase as before. In some few cases of ulcerated cancers it mended the discharge, and changed it from a thin ichorous state, to a thicker consistence, like to that which we call laudable pus; but, notwithstanding, the disorder increased, and at last terminated fatally. The physicians and surgeons of the other hospitals in London have often told me that they had made the same observations on the use of the hemlock in cancerous disorders as I had.

"The cicuta produced better effects in scrophulous than in the cancerous disorders; some few very small tumors were thought to have been discussed by its use; but I never saw it remove any tumor that was large and hard, though given in large quantity for weeks or months daily. In scrophulous sores of the extremities it often mended the discharge when it was continued for some time. In many scrophulous cases it had a much better effect when it was administered along with the bark, than when it was given by itself; many of the sores came to a better state than I ever expected to have seen them; and in three cases, where there was reason to suspect that the bones were affected, the sores healed by continuing the use of these two medicines for four or five months. I tried the cicuta and bark separately in many such cases, but neither of them produced such good effects as when they were given at the same time.

"The discharge from some sore legs, and from some other foul ulcers, was mended by the patient's taking freely of this extract, and it was thought to assist the operation of the bark and of mercury in some cases.

"It was given to a number of out-patients labouring under the chincough, but it did not produce such good effects as were expected.

The observations on the various success of the cicuta in Ireland, given by the late Dr. Rutty, in the third volume of Medical Observations and Inquiries, agree in most respects with what is here mentioned; only that he relates a case where a sore on the upper part of the sternum, which was suspected to have been cancerous, was cured by taking freely of the cicuta. In the same volume of Observations the late Dr. Fothergill mentions three cases: 1. Of a gentleman who laboured under a very painful ulcer of the nose, which had spread and corroded a great part of the integuments of one of the eyelids. 2. Of another gentlemen who had a violent pain on one side of his face, about the antrum highmorianum. 3. Of a lady who had large angry pimples on her face, and a number of small steatomatous tumors on her scalp, and at the same time laboured under the fluor albus; who all three received great benefit from the use of the cicuta. And he says that it cured a rheumatic pain in the arm, which had continued long; and that he had seen it of service where there were symptoms of tubercles beginning to form in the lungs.

Dr. Bergius mentions "that it has no effect in curing the true cancer, but that it has been of service in scrophulous complaints, and in venereal, when joined with mercury; and that it is sometimes of use in cutaneous disorders.

"It is right to begin with giving small quantities of this extract, and to increase the dose gradually; I have generally begun with giving four or five grains to an adult three or four times in the day, and gradually increased the dose to a scruple; I seldom exceeded a drachm in the day, except in a few cases, where I gave it the length of two; though I have seen some practitioners give half an ounce in that time; and in one case or two I saw above an ounce of it given in the twenty-four hours.

"In some few instances I imagined that it hurt the general health of the patients, and in one or two cases that it hastened death; though the use of the cicuta had been laid aside some time before the patients died, and they sunk so gradually as to leave it mere matter of conjecture what had been the cause of their death."

Some practitioners, however, speak more favourably of this plant. Dr. Withering says: "Let the leaves be gathered about

the end of June, when the plant is in flower. Pick off the little leaves, and throw away the leaf-stalks. Dry these selected little leaves in a hot sun, or in a tin dripping-pan or pewter dish before the fire. Preserve them in bags made of strong brown paper; or powder them, and keep the powder in glass phials, in a drawer or something that will exclude the light, for the light soon dissipates the beautiful green colour, and with its colour the medicine loses its efficacy. From fifteen to twenty-five grains of this powder may be taken twice or thrice a day. I have found it particularly useful in chronic rheumatisms, and also in many of those diseases which are usually supposed to arise from acrimony. The nature of this book does not allow minute details of the virtues of plants, but I can assure the medical practitioner that this is well worth his attention."—Bot. Arrang. 2d ed. p. 280. And the respectable Haller says, "it has often succeeded where other remedies have failed, and if it has not always succeeded in cancer, it has always allayed the distress of that most afflicting disorder."

PREPARATIONS.

Inspissated Juice of Hemlock. (Succus Cicutæ Spissatus.)

Express the leaves of hemlock, gathered when the flowers are just appearing, and allow the juice to stand six hours, until the fæces subside; then reduce the decanted juice to the thickness of an extract with a moderate heat.

This is a very convenient form for the exhibition of those substances which are sufficiently succulent to afford a juice by expression, and whose virtues do not reside in any very volatile matter. By inspissation the bulk of the requisite dose is very much diminished; they are reduced to a form convenient for making up into pills; and they are much less apt to spoil than the simple expressed juices. The mode of their preparation is not yet, however, reduced to fixed principles. Some direct the juices to be inspissated as soon as they are expressed; others allow them previously to undergo a slight degree of fermentation; some defæcate them before they proceed to inspissate them; and, lastly, the nature of the soil, of the season, and many other circumstances, must materially alter the quantity or nature of the product. In moist years Baumé got from thirty pounds of elder berries four or five pounds of inspissated juice, and in dry years only two, or two and a half. From hemlock he

got, in October 1769, 7·5 per cent. of inspissated juice, and in May of the same year only 3·7; on the contrary, in August 1768, 4 per cent., and in May 1770, 6·5; but, in general, the product in the autumn months was the greatest.

Haller disapproves of gathering the hemlock in the autumn, when its virtues are greatly extracted by the seeds, and says it has most efficacy in the spring. This observation merits all the attention such authority deserves.

PRESCRIPTIONS.

℞. 1. Take of the inspissated juice of hemlock, three grains;
——— compound powder of tragacanth, one drachm:
Rub them together, and divide into six equal parts, of which take one twice a day at first, then four times a day, gradually increasing the dose. This is to be given in inward and outward cancers, chronic rheumatism, exhausting by pain, dry irritating cough, vomica: and half the dose to children in the last stage of the hooping cough, accompanied with a hectic look, and much fever; but not in any mild case of this disease, as it seldom proves under such circumstances fatal, unless injudiciously treated with this poison.

℞. 2. Take of the inspissated juice of hemlock, one drachm;
——— the dried herb hemlock, in powder, as much as is sufficient to produce a mass to form pills:
Make into thirty pills, of which take one or more twice a day, gradually increasing them each day as may be required. Employed in the same diseases as the last; also in cases of high scorbutic acrimony.

℞. 3. Take of the dried herb hemlock,
——— chamomile flowers, of each one ounce;
——— boiling water, a pint:
Boil for ten minutes, and add to the strained juice linseed meal, as much as may be sufficient to make a cataplasm, to be applied warm to the affected part, passing over it a little oil, and renewed twice a day. For an open cancer.

ELDER.

SAMBUCUS NIGRA.

Class V. Pentandria. *Order* III. Trigynia.

Essent. Gen. Char. *Calyx* five-parted: *Corolla* five-cleft: *Berry* three-seeded.

Spec. Char. *Cyme* five-partite: *Leaves* pinnate: *Stem* arboreous.

DESCRIPTION.

It rises to the height of a small tree. It is much branched towards the top. The young shoots are full of pith, the old ones without any. The leaves are pinnated, consisting of two or three pair of pinnæ, with an odd one at the end. The flowers are sweet-smelling, white, and produced on large flat umbels or clusters. These do not proceed from a regular centre, therefore it only approximates to the umbelliferous tribe. The fruit is a round succulent berry, of a blackish purple colour, and contains three seeds, which are flat on one side and angular on the other.

HISTORY.

This tree is frequent in hedges; it flowers in June, and ripens its fruit in September. The berries contain malic acid, and have a sweetish, not unpleasant, taste; nevertheless, eaten in sub-

stance, they offend the stomach. For the market they are gathered indiscriminately from the Sambucus nigra and ebulus; a very venial fraud, as their effects are exactly the same. They are, however, easily distinguished, by the latter, when bruised, staining the fingers of a red colour, and the former of the colour of a withered leaf.

MEDICAL USE.

An infusion of the inner green bark of the trunk in wine, or the expressed juice of the berries in the dose of half an ounce or an ounce, is said to purge moderately, and in small doses to prove an efficacious deobstruent, capable of promoting all the fluid secretions. The expressed juice, inspissated to the consistence of a rob, proves an useful aperient medicine, promotes the natural evacuations, and, if continued for a sufficient length of time, does considerable service in various chronical disorders. The young leaf buds are strongly purgative, and act with so much violence, as to be deservedly accounted unsafe. The flowers are very different in quality: these have an agreeable aromatic flavour, which they yield in distillation to water, and impart, by infusion, to vinous and spirituous liquors.

PREPARATIONS.

INSPISSATED JUICE OF ELDER BERRIES, COMMONLY CALLED ELDER ROB. (Succus Spissatus Sambuci Nigri, vulgo Rob Sambuci. E.)

Take of juice of ripe elder berries, five pounds;
——— double refined sugar, one pound:
Evaporate, with a gentle heat, to the consistence of pretty thick honey.

These inspissated juices contain the virtues of the respective vegetables in a very concentrated state. Those of the elder, black currant, and lemon, are acidulous, cooling, and laxative, and may be used in considerable quantities.

ELDER OINTMENT. (Unguentum Sambuci. L.)

Take of elder flowers, four pounds;
——— mutton suet, prepared, three pounds;
——— olive oil, one pint:
Boil the flowers in the suet and oil till they be almost crisp; then strain with expression.

Dub.

Take of fresh elder flowers, three pounds;
——— prepared hogs lard, four pounds;
——— mutton suet, two pounds:
Boil the flowers in the lard until they become crisp; then strain with expression; lastly, add the wax, and melt them together.

Compositions of this kind were formerly very frequent; but vegetables, by boiling in oils, impart to them nothing but a little mucilage, which changes the greasy oils to drying oils, and any resin they may contain; but that also is never in such quantity as to affect the nature of the oil. We therefore do not suppose that this ointment possesses any properties different from a simple ointment of the same consistence, except its fragrancy. Perhaps on this account it is found to be a pleasant ointment to apply to the piles when outward; and the colour and smell give the patient a degree of faith, which is an excellent stimulus in painful diseases, which are apt to produce great depression of spirits.

ELDER WINE.

Pick your berries when quite ripe, put them into a stone jar, and set them in an oven, or in a kettle of boiling water, till the jar is hot through; them take them out, and strain them through a coarse sieve; squeeze the berries, and put the juice into a clean kettle. To every quart of juice put a pound of fine Lisbon sugar; let it boil, and skim it well. When clear and fine, pour it into a cask. To every ten gallons of wine add an ounce of isinglass dissolved in cider, and six whole eggs. Close it up, let it stand six months, and then bottle it.

Another Way.—Take twenty-five pounds of Malaga raisins, and rub them small; then boil five gallons of water an hour, and let it stand till milk warm: put it into an earthen stein with your raisins, and let them steep ten days, stirring them twice a day; pass the liquor through a hair sieve, and have in readiness five pints of the juice of elder berries, drawn off as you do jelly of currants; mix it cold with the liquor, stir it well together, and put it in a cask. Let it stand in a warm place; and when it has done working, stop it close and bottle it.

Elder Flower Wine, or English Frontiniac.

Boil eighteen pounds of white powdered sugar in six gallons of water, and two whites of eggs well beaten; skim it, and put in a quarter of a peck of elder flowers; do not keep them on the fire. When cool, stir it, and put in six spoonfuls of lemon-juice, four or five of yeast, and beat well into the liquor; stir it well every day; put six pounds of the best raisins, stoned, into the cask, and tun the wine. Stop it close, and bottle in six months. When well kept, this wine will pass very well for Frontiniac.

DWARF ELDER.

SAMBUCUS EBULUS.

Class V. Pentandria. *Order* III. Trigynia.

Essent. Gen. Char. *Calyx* five-parted: *Corolla* five-cleft: *Berry* three-seeded.

Spec. Char. *Cyme* tripartite: *Stipules* foliaceous: *Stem* herbaceous.

DESCRIPTION.

This rises to six feet in height, herbaceous, erect. Leaves opposite, pinnated, composed of four or five pair, with an odd one at the extremity: pinnæ lanceolate, unequal, serrated. Flowers in terminal corymbi. Calyx cut into five teeth. Corolla monopetalous, wheel-shaped, cut into five large segments. Fruit a roundish, black, single-celled berry, containing three irregularly shaped seeds.

HISTORY.

It is not unfrequent in hedges, flowering in June and July, but seldom brings its fruit to maturity.

MEDICAL VIRTUES.

Every part of the plant has a faint disagreeable smell, resembling that of common elder, but stronger and more ungrateful; and,

when taken into the stomach, manifests a greater share of active power.

The root of the ebulus, which is white, fleshy, and of a nauseous bitter taste, was formerly very generally employed in dropsies. A decoction of two drachms of it, or a small quantity of its expressed juice, promotes both the alvine and urinary discharges; and if the decoction is prepared from the bark of the fresh root, its activity is so much increased, that it commonly proves both emetic and cathartic.

The inner bark of the stalk, when recent, is equally powerful in evacuating the *primæ viæ*; and its effects, as a diuretic, on the testimony of Dr. Brocklesby, were found to be very considerable; but its operation is so violent and precarious, that it is now very rarely employed.

The berries, in their recent state, according to Scopoli, prove a gentle cathartic, though Haller says that he never experienced this effect from their use.

The seeds are said to be diuretic, and to have been given with advantage in dropsical complaints: they also afford an oil, which Haller applied with success in painful affections of the joints.

The leaves, boiled in wine, and formed into a cataplasm, have been recommended in France as a discutient application to contusions and tumours.

ELM-LEAVED SUMACH.

RHUS CORIARIA.

Class V. Pentandria. *Order* III. Trigynia.

Essent. Gen. Char. *Calyx* five-parted: *Petals* five: *Berry* one seed.

Spec. Char: *Leaves* obtusely pinnate, serrate, oval, underneath villous.

DESCRIPTION.

This is a small tree, rises ten feet. Leaves are pinnate, composed of several pinnæ, which are lance-shaped, obtusely sawed, smooth above, hairy beneath; ends with an odd leaf. The common footstalk is somewhat winged. Flowers small, bundled together, in a long spike.

HISTORY.

This species of sumach is a native of the south of Europe, and appears from the *Catalogus Horti Oxoniensis* to have been cultivated in that garden previous to the year 1648, though it is still a scarce plant in this country.

MEDICAL USE.

The genus to which this species belongs comprehends several species which are known to be extremely poisonous, especially the rhus toxicodendron, radicans, and vernix; but the coriaria is perfectly innocent, and its berries are in some places used for culinary purposes.

Its medicinal qualities are wholly to be ascribed to its stypticity or astringency; a property which it possesses in a sufficient degree to render it useful in dyeing, and also in tanning of leather, for which it was used in the time of Dioscorides.

Both the leaves and berries have been employed in medicine, but the former are more astringent and tonic, and have been long in common use in various complaints indicating this class of remedies.

The berries, which are red, and of a roundish compressed figure, contain a pulpy matter, in which is lodged a brown, hard, oval seed, manifesting a considerable degree of astringency. The pulp, even when dry, is gratefully acid, and has been discovered to contain an essential salt similar to that of wood-sorrel, or perhaps more nearly allied to crystals of tartar.

An infusion of the dry fruit is not rendered black by a solution of iron; hence it appears to be destitute of astringency; but its acidity is extremely grateful, which has caused the tree to be called by the French le vinaigrier. Therefore, like many other acid summer fruits, these berries may be advantageously taken to allay febrile heat, and to correct bilious putrescency.

Lately the rhus toxicodendron and radicans have been recommended in paralytic affections; the latter by Mr. Fresnoi, and the former by Dr. Alderson, of Hull: but the cases in which these virulent plants were employed are but few and indecisive.

FLAX.

LINUM USITATISSIMUM.

Class V. Pentandria. *Order* V. Pentagynia.

ESSENT. GEN. CHAR. *Calyx* five-leaved: *Petals* five: *Capsule* five-valved, ten-celled: *Seed* single.

DESCRIPTION.

THIS plant rises to a foot and a half. The branches are simple, erect, and terminated by the flowers. They are single, of a sky blue colour. The leaves are lance-shaped, acute, sessile. The calyx is cut into five segments. The corolla is composed of five petals.

HISTORY.

This valuable annual plant is said to have come originally from those parts of Egypt which are exposed to the inundations of the Nile. It now grows wild in the fields in the south of England, and is cultivated in large quantities. It flowers in July.

Linseed contains about one-fifth of mucilage, and one-sixth of fixed oil. The mucilage resides entirely in the skin, and is separated by infusion or decoction. The oil is separated by expression. It is one of the cheapest fixed oils; but is generally rancid and nauseous, and unfit for internal use. The cake which

remains after the expression of the oil, contains the farinaceous and mucilaginous part of the seed, and is used in fattening cattle under the name of oil-cake.

MEDICAL USE.

Linseed is emollient and demulcent. The entire seeds are used in cataplasms. The infusion is much employed as a pectoral drink, and in ardor urinæ, nephritic pains, and during the exhibition of corrosive sublimate.

Linseed abounds with a quantity of oil and mucilage. It yields its mucilage to water; and infusions of it, sweetened with sugar or honey, or prepared with the addition of some liquorice root, prove good and useful remedies in coughs and rheums; and the oil got by expression may be used as other mild oils.

Bergius recommends this oil as a good remedy in the iliac passion and volvulus. It is much employed in manufactures of different kinds.

PREPARATIONS.

Cure for a recent Cough and Cold.

Put a large tea-cupful of linseed, with a quarter of a pound of sun raisins and two ounces of stick liquorice, into two quarts of soft water, and let it simmer over a slow fire till reduced to one quart; add to it a quarter of a pound of pounded sugar-candy, a table-spoonful of old rum, and a table-spoonful of the best white wine vinegar or lemon-juice. The rum and vinegar should be added as the decoction is taken; for, if they are put in at first, the whole soon becomes flat, and less efficacious. The dose is half a pint, made warm, on going to bed; and a little may be taken whenever the cough is troublesome. The worst cold is generally cured by this remedy in two or three days; and, if taken in time, is considered infallible.

Liniment of Lime Water, or Linseed Oil with Lime.

(Linimentum Aquæ Calcis, sive Oleum Lini cum Calce. E.)
(Linimentum Calcis. D.)

Take of linseed oil (olive oil, D.);
——— lime water, of each equal parts (three ounces, by measure, D.):
Mix them (by shaking them together. D.)

This liniment is extremely useful in cases of scalds or burns, being singularly efficacious in preventing, if applied in time, the inflammation subsequent to these; or even in removing it after it has come on.

It is also a species of soap, and might be called soap of lime, although it probably contains a great excess of oil.

To dress Flax to look like Silk.

Take one part lime, and between two and three parts of wood ashes; pour over them a due proportion of water to make a strong ley after they have stood together all night, which must be poured off when quite clear. Tie handfuls of flax at both ends, to prevent its entangling, but let the middle of each be spread open, and put it in a kettle, on the bottom of which has first been placed a little straw, with a cloth over it. Then put another cloth over the flax, and so continue covering each layer of flax with a cloth, till the kettle is nearly full. Pour over the whole the clear ley; and, after boiling it for some hours, take it out, and throw it in cold water. This boiling, &c. may be repeated, if requisite. The flax must be each time dried, hackled, beaten, and rubbed fine; and, at last, dressed through a large comb, and then through a very fine one. By this process the flax acquires a bright and soft thread. The tow which is beaten off, when papered up and combed like cotton, is not only used for many of the same purposes, but makes lint for veterinary surgeons, &c.

OFFICINAL SQUILL, OR SEA ONION.

SCILLA MARITIMA.

Class VI. Hexandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* six-petalled, deciduous: *Filaments* filiform.

SPEC. CHAR. *Flower* naked: *Bracteas* refracted.

DESCRIPTION.

It rises two or three feet. Leaves sword-shaped, radical, of a deep green. Flowers whitish, produced in long close spikes upon purplish peduncles. Bractea linear, dropping. Capsule contains many seeds.

HISTORY.

The squill is a perennial bulbous-rooted plant, which grows wild on the sandy shores of Spain, Portugal, north of Africa, and the Levant.

The root is about the size of the fist, pear-shaped, with the apex upwards, and consists of fleshy scales, attenuated at both edges, surrounded by other scales, which are arid, shining, and

so thin, that the root, at first sight, seems to be tunicated. The recent root is full of a white viscid juice, has scarcely any smell, but a very bitter, nauseous, and extremely acrid, taste. Rubbed on the skin, it inflames and blisters.

It is more commonly met with in the shops in the form of the dried scales, which should be brittle, semipellucid, smooth, but marked with lines, and when chewed should feel tenacious, and taste very bitter, without manifesting acrimony.

The active constituent of the squill is the acrid principle; and therefore it becomes almost inert by too much drying, or by being kept too long in the form of powder. It also contains bitter extractive, much mucilage, albumen, and starch.

MEDICAL USE.

Given internally in large doses it produces purging and vomiting, sometimes even strangury, bloody urine, inflammation and erosion of the stomach. In smaller doses it proves an useful expectorant and diuretic, and it is said to lessen the frequency of the pulse.

Squill is sometimes given as a general stimulant. But it is much more frequently exhibited as an expectorant, where the lungs are loaded with viscid matter, and as a diuretic in dropsical cases, for which purpose it is commonly conjoined with calomel.

The dose of squill is one or two grains three or four times a day; and the most commodious form for its exhibition, unless when designed as an emetic, is that of a bolus, or pill: in a liquid form it is to most people too offensive, though rendered less disagreeable both to the palate and stomach by the addition of aromatic distilled waters.

PREPARATIONS.

CONSERVE OF SQUILLS. (Conserva Scillæ. L.)

Take of fresh squills, one ounce;

——— double refined sugar, five ounces:

Beat them together in a mortar into a conserve.

This is a very uncertain and disagreeable mode of exhibiting this valuable simple. A tea-spoonful is to be taken three times a day.

The London college conclude their chapter on conserves with desiring all the conserves, especially those of arum and squills, to be kept in close vessels.

Tincture of Squill. (Tinctura Scillæ. L. D.)

Take of squills, fresh dried, four ounces;
——— proof spirit of wine, two pints:
(Digest for eight days, and pour off the liquor, L.):
Digest for seven days; then set it aside, and, when the fæces have subsided, pour off the pure liquor, D.

The active principle of squills is soluble in alcohol, and there are cases in which a tincture may be useful. The dose is fifteen to thirty drops, three times a day.

Honey of Squills. (Mel Scillæ. L.)

Take of clarified honey, three pounds;
——— tincture of squills, two pints:
Boil them, in a glass vessel, to the thickness of a syrup.

This is merely a sweetened tincture of squills, and, when wanted, may be prepared extemporaneously. The dose is one to two drachms three times a day.

Oxymel of Squills. (Oxymel Scillæ. L. D.)

Take of clarified honey, three pounds;
——— vinegar of squills, two pints:
Boil them in a glass vessel, with a slow fire, to the thickness of a syrup.

Oxymel of squills is an useful aperient, detergent, and expectorant, and of great service in humoral asthmas, coughs, and other disorders where thick phlegm abounds. It is given in doses of two or three drachms, along with some aromatic water, as that of cinnamon, to prevent the great nausea which it would otherwise be apt to excite. In large doses it proves emetic.

Syrup of Squills. (Syrupus Scillæ Maritimæ. E.)

Take of vinegar of squills, two pounds;
——— double refined sugar, in powder, three pounds and a half:
Dissolve the sugar with a gentle heat, so as to form a syrup.

This syrup is used chiefly in doses of a spoonful or two, for promoting expectoration, which it does very powerfully. It is also given as an emetic to children.

Vinegar of Squills. (Acetum Scillæ Maritimæ. E.)

Take of dried squills, two ounces;

Take of distilled acetous acid, two pounds and a half;
——— alcohol, three ounces:
Macerate the squills in the acetous acid for seven days; then press out the liquor, to which add the alcohol; and, when the fæces have subsided, pour off the clear liquor.

Vinegar of Squills. (Acetum Scillæ. L.)

Take of squills, recently dried, one pound;
——— vinegar, six pints;
——— proof spirit, half a pint:
Macerate the squills with the vinegar in a glass vessel, with a gentle heat, for twenty-four hours; then express the liquor, and set it aside until the fæces subside. To the decanted liquor add the spirit.

Vinegar of squills is a medicine of great antiquity. It is a very powerful stimulant; and hence it is frequently used, with great success, as a diuretic and expectorant. The dose of this medicine is from a drachm to half an ounce: where crudities abound in the first passages, it may be given at first in a larger dose, to evacuate them by vomiting. It is most conveniently exhibited along with cinnamon, or other agreeable aromatic waters, which prevent the nausea it would otherwise, even in small doses, be apt to occasion.

Powder of Squills. (Pulvis Scillæ. D.)

Cut the squills, after having removed their membranaceous integuments, into transverse slices; dry these on a sieve with a gentle heat, and reduce them to powder, which is to be kept in phials with ground stoppers.

The Drying of Squill. (Scillæ Exsiccatio. L.)

Cut the squill, after having removed its dry coats, transversely into thin slices, and dry it by a gentle heat.

Dried Sea Squill. (Scilla Maritima Exsiccata. E.)

Cut the root of the sea squill, after having removed its external coat, transversely into thin slices, and dry it by a gentle heat. The sign of its being properly dried is, that, although rendered friable, it retains its bitterness and acrimony.

By this method the squill dries much sooner than when its several coats are only separated; the internal part being here laid bare, while in each of the entire coats it is covered with a

thin skin, which impedes the exhalation of the moisture. The root loses in this process four-fifths of its original weight; the parts which exhale with a moderate heat appear to be merely watery: hence six grains of the dry root are equivalent to half a drachm of it when fresh; a circumstance to be particularly regarded in the exhibition of this medicine. But if too great heat has been employed in drying it, it becomes almost inert, and it also loses its virtues by long keeping in the state of powder.

Dried squills furnish us with a medicine, sometimes advantageously employed as an emetic, often as an expectorant, and still more frequently as a powerful diuretic. The recent root is given from five to fifteen grains, and of the dried from one to three grains.

Squill Pills. (Pilulæ Scillæ. L.)

Take of fresh dried squills, powdered, one drachm;
——— ginger, powdered,
——— soap, of each three drachms;
——— ammoniacum, two drachms;
——— syrup of ginger, as much as is sufficient:
Beat them together.

Squill Pills with Ginger. (Pilulæ Scillæ cum Zingibere. D.)

Take of powder of squills, one drachm;
——— ginger, in fine powder, two drachms;
——— essential oil of aniseed, ten drops:
Triturate together, and form into a mass with jelly of soap.

Squill Pills. (Pilulæ Scilliticæ. E.)

Take of dried root of squills, in fine powder, one scruple;
——— gum ammoniac,
——— lesser cardamom seeds, in powder,
——— extract of liquorice, of each one drachm:
Form them into a mass with simple syrup.

These are elegant and commodious forms for the exhibition of squills, whether for promoting expectoration, or with the other intentions to which that medicine is applied. As the virtue of the compound is derived chiefly from the squills, the other ingredients are often varied in extemporaneous prescription. The dose is from ten grains to one scruple, three times a day.

PRESCRIPTIONS.

℞. 1. Take of the recent squill, dried, in powder, four grains;
——— crystals of tartar, in powder, one scruple:
Make a powder, to be taken night and morning in a cup of barley water, sweetened with a lump of powdered white sugar. This is excellent for a dropsy.

℞. 2. Take of conserve of squill, half a drachm;
——— calomel, two grains;
——— purified opium, half a grain:
Make into a bolus, to be taken every night going to bed. Given in pituitous asthma, and dropsy.

℞. 3. Take of tincture of squills from 20 to 31 drops;
——— cinnamon water,
——— rose water, equal quantities, six drachms:
To be taken three times a day. For asthma and dropsy.

COMMON CULTIVATED GARLIC.

ALLIUM SATIVUM.

Class VI. Hexandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* six-parted, patent: *Spatha* multiflorous: *Umbel* congested: *Capsule* superior.

SPEC. CHAR. *Stem* bulb-bearing: *Bulb* compound: *Stamina* tricuspidate.

DESCRIPTION.

It rises a foot or more. The leaves from the root are numerous; on the stem few, long, flat, grass-like. The flowers arise between the small bulbs, which terminate the stem in a cluster. The flower is white, and commonly abortive. The calyx is a spatha common to all the florets and bulbs. The corolla consists of six oblong petals. The capsule is short, broad, three-celled and three-valved, and contains roundish seeds.

HISTORY.

Garlic is a perennial bulbous-rooted plant, which grows wild in Sicily, and is cultivated in our gardens. The root consists of

five or six small bulbs, called cloves, inclosed in one common membranous coat, but easily separable from each other. All the parts of this plant, but more especially the roots, have a strong, offensive, very penetrating and diffusible smell, and an acrimonious, almost caustic, taste. The root is full of a limpid juice, of which it furnishes almost a fourth part of its weight by expression. It also loses about half its weight by drying, but scarcely any of its smell or taste. By decoction its virtues are entirely destroyed; and by distillation it furnishes a small quantity of a yellowish essential oil, heavier than water, which possesses the sensible qualities of the garlic in an eminent degree. Its peculiar virtues are also in some degree extracted by alcohol and acetous acid.

By Neumann's analysis it lost two-thirds of its weight by exsiccation. By decoction from 960 parts, water extracted 380, and the residuum yielded 27 to alcohol, and was reduced to 40. Alcohol applied first, extracted 123, the residuum yielded 162 to water, and was reduced to 40. In both cases the alcoholic extract was unctuous and tenacious, and precipitated metallic solutions. But the active ingredient was a thick, ropy, essential oil, according to Hagen heavier than water, not amounting to more than 1·3 of the whole, in which alone resided the smell, the taste, and all that distinguishes the garlic.

MEDICAL USE.

Applied externally it acts successively as a stimulant, rubefacient, and blister. Internally, from its very powerful and diffusible stimulus, it is often useful in diseases of languid circulation and interrupted secretion. Hence in cold leuco-phlegmatic habits it proves a powerful expectorant, diuretic, and, if the patient be kept warm, sudorific; it has also been by some supposed to be emmenagogue. For the same reason, in cases in which a phlogistic diathesis, or irritability prevails, large doses of it may be very hurtful.

It is sometimes used by the lower classes as a condiment, and also enters as an ingredient into many of the epicure's most favourite sauces. Taken in moderation it promotes digestion; but in excess, it is apt to produce headach, flatulence, thirst, febrile heat, and inflammatory diseases, and sometimes occasions a discharge of blood from the hæmorrhoidal vessels.

In fevers of the typhoid type, and even in the plague itself, its virtues have been much celebrated.

Garlic has been said to have sometimes succeeded in curing obstinate quartans, after cinchona had failed. In catarrhal disorders of the breast; asthma, both pituitous and spasmodic; flatulent colics; hysterical and other diseases, proceeding from laxity of the solids, it has generally good effects: it has likewise been found serviceable in some hydropic cases. Sydenham relates that he has known the dropsy cured by the use of garlic alone; he recommends it chiefly as a warm strengthening medicine in the beginning of the disease.

It is much recommended by some as an anthelmintic, and has been frequently applied with success externally as a stimulant to indolent tumours, in cases of deafness proceeding from atony or rheumatism, and in retention of urine, arising from debility of the bladder.

Garlic may either be exhibited in substance, and in this way several cloves may be taken at a time without inconvenience, or the cloves cut into slices may be swallowed without chewing. This is the common mode of exhibiting it for the cure of intermittents.

The expressed juice, when given internally, must be rendered as palatable as possible, by the addition of sugar and lemon juice. In deafness, cotton moistened with the juice is introduced within the ear, and the application renewed five or six times in one day.

Infusions in spirit, wine, vinegar, and water, although containing the whole of its virtues, are so acrimonious as to be unfit for general use; and yet an infusion of an ounce of bruised garlic in a pound of milk, was the mode in which Rosenstein exhibited it to children afflicted with worms.

But by far the most commodious form for administering garlic, is that of a pill or bolus conjoined with some powder, corresponding with the intention of giving the garlic. In dropsy calomel forms a most useful addition. It may also sometimes be exhibited with advantage in the form of a clyster.

Garlic made into an ointment with oils, &c. and applied externally, is said to resolve and discuss indolent tumours, and has been by some greatly esteemed in cutaneous diseases. It has likewise sometimes been employed as a repellent. When applied under the form of a poultice to the pubis, it has sometimes

proved effectual in producing a discharge of urine, when retention has arisen from a want of due action in the bladder. Sydenham assures us, that among all the substances which occasion a derivation or revulsion from the head, none operates more powerfully than garlic applied to the soles of the feet: with this intention he used it in the confluent small-pox, about the eighth day, after the face began to swell; the root cut in pieces, and tied in a linen cloth, was applied to the soles, and renewed once a day till all danger was over.

ONION.

This is also a perennial bulbous-rooted plant. The root is a simple bulb, formed of concentric circles. It possesses in general the same properties as the garlic, but in a much weaker degree. Neumann extracted from 480 parts of the dry root, by means of alcohol, 360, and then by water 30; by water applied first 395, and then by alcohol 30: the first residuum weighed 56, and the second 64. By distillation the whole flavour of the onions passed over, but no oil could be obtained.

MEDICAL USE.

Onions are considered rather as an article of food than of medicine: they are supposed to yield little or no nourishment, and when eaten liberally produce flatulencies, occasion thirst, headachs, and turbulent dreams; in cold phlegmatic habits, where viscid mucus abounds, they doubtless have their use; as by their stimulating quality they tend to excite appetite, and promote the secretions: by some they are strongly recommended in suppressions of urine, and in dropsies. The chief medicinal use of onions in the present practice is in external applications, as a cataplasm for suppurating tumours, &c.

Yet it must be allowed by all, that onions made into sauce, or taken roasted for supper, are a very useful diet in cases of water in the chest, as in general dropsy.

SOCOTRINE ALOE.

ALOE PERFOLIATA SOCOTRINA.

Class VI. Hexandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* monopetalous, nectariferous: *Filaments* inserted upon a receptacle.

Spec. Char. *Leaves* cauline, dentate, amplexicaul, vaginant: *Flowers* pedunculated.

HISTORY.

The aloes is a perennial plant, of which there are many varieties which grow in the south of Europe, Asia, Africa, and America. But Thunberg says, and the Dublin college agree with him, that the finest aloes are prepared from the Aloe spicata, the second species of Willdenow, which grows at the Cape of Good Hope.

During four years that the Cape of Good Hope was in possession of the British, more than 300,000 pounds, the produce of that settlement, were imported into England; and as this quantity was infinitely greater than could be required for the purposes of medicine, it is not improbable that, as Mr. Barrow

states, its principal consumption was by the London porter brewers.

1. Socotrine Aloes. (L. E. Sp. 2. Aloe Spicata. D.)

This article is brought, wrapt in skins, from the island of Socotora in the Indian ocean. This sort is the purest of the three in use: it is of a glossy surface, clear, and in some degree pellucid; in mass, of a yellowish red colour, with a purple cast; when reduced to powder, of a bright golden colour. It is hard and friable in the winter, somewhat pliable in summer, and grows soft between the fingers. Its taste is bitter and disagreeable, though accompanied with some aromatic flavour; the smell is not very unpleasant, and somewhat resembles that of myrrh.

It is prepared in July, by pulling off the leaves, from which the juice is expressed, and afterwards boiled and skimmed. It is then preserved in skins, and dried in August in the sun. According to others, the leaves are cut off close to the stem, and hung up. The juice which drops from them without any expression, is afterwards dried in the sun.

2. Barbadoes or Hepatic Aloes. (L. E. D.)

Hepatic aloes is not so clear and bright as the foregoing sort; it is also of a darker colour, more compact texture, and for the most part drier. Its smell is much stronger and more disagreeable; the taste intensely bitter and nauseous, with little or nothing of the aromatic flavour of the socotrine. The best hepatic aloes come from Barbadoes in large gourd shells, and an inferior sort of it, which is generally soft and clammy, is brought over in casks. In Barbadoes the plant is pulled up by the roots, and carefully cleaned from the earth and other impurities. It is then sliced into small hand-baskets and nets, which are put into large iron boilers or cauldrons with water, and boiled for ten minutes, when they are taken out, and fresh parcels supplied till the liquor is strong and black, which is then strained into a deep vat, narrow at the bottom, where it is left to cool and to deposit its fæculent parts. Next day the clear liquor is drawn off by a cock, and again committed to a large iron vessel. At first it is boiled briskly, but towards the end it is slowly evaporated, and requires constant stirring to prevent burning. When it becomes of the consistence of honey, it is poured into gourds or calabashes for sale, and hardens by age.

3. Fœtid, Caballine, or Horse Aloes.

This sort is easily distinguished from both the foregoing by its strong rank smell; although, in other respects, it agrees pretty much with the hepatic, and is not unfrequently sold in its stead.

Sometimes the caballine aloes is prepared so pure and bright, as not to be distinguishable by the eye even from the socotrine; but its offensive smell, of which it cannot be divested, readily betrays it. It is now excluded from the list of almost all modern pharmacopœias, and is employed solely by farriers.

From sixteen ounces of aloes Neumann extracted near fifteen by means of alcohol. From the residuum water took up one drachm, about an ounce of impurities being left; on inverting the procedure and applying water first, he obtained but thirteen ounces and a half of watery extract, and from the residuum alcohol dissolved an ounce and a half. According to this analysis, 1000 parts of aloes contain about 78 soluble in water only, or analogous to gum, 980 soluble in alcohol only, or resinous, and 895 soluble both in alcohol, and in water or extractive. The constituent principles of aloes therefore appear to be resin and extractive. Dr. Lewis also remarks, that decoctions of aloes let fall a precipitate, as they cool, probably from extractive being more soluble in boiling than in cold water. He also proved the hepatic aloes to contain more resin and less extractive than the socotrine, and this less than the caballine. The resins of all the sorts, purified by alcohol, have little smell; that obtained from the socotrine has scarce any perceptible taste; that of the hepatic, a slight bitterish relish; and the resin of the caballine, a little more of the aloetic flavour. The extractive obtained separately from any of the kinds, is less disagreeable than the crude aloes: the extractive of socotrine aloes has very little smell, and is in taste not unpleasant: that of the hepatic has a somewhat stronger smell, but is rather more agreeable in taste than the extract of the socotrine: the extractive of caballine retains a considerable share of the peculiar rank smell of this sort of aloes, but its taste is not much more unpleasant than that of the extractive obtained from the two other sorts.

MEDICAL USE.

Aloes is a bitter stimulating purgative, exerting its action chiefly on the rectum. In doses of from 4 to 6 grains it empties the large intestines, without making the stools thin; and likewise

warms the habit, quickens the circulation, and promotes the uterine and hæmorrhoidal fluxes. If given in so large a dose as to purge effectually, it often occasions an irritation about the anus, and sometimes a discharge of blood.

It is frequently employed in cases of suppression of the menses, or of the hæmorrhoidal discharge: but it is particularly serviceable in habitual costiveness, to persons of a phlegmatic temperament and sedentary life, and where the stomach is oppressed and weakened. It has, however, a tendency to induce and augment hæmorrhoidal affections; and with those who are liable to such complaints, it should be avoided. In dry bilious habits aloes proves injurious, immoderately heating the body, and inflaming the bowels.

Some are of opinion, that the purgative virtue of aloes resides entirely in its resin; but experience has shown, that the pure resin has little or no purgative quality, and that the extractive part separated from the resinous, acts more powerfully than the crude aloes. If the aloes indeed be made to undergo long coction in the preparation of the gummy extract, its cathartic power will be considerably lessened, not from the separation of the resin, but from an alteration made in the extractive itself by the action of the heat and air. The strongest vegetable cathartics become mild by a similar treatment.

Socotrine aloes, as already observed, contains more extractive than the hepatic; and hence is likewise found to purge more, and with greater irritation. The first sort, therefore, is most proper where a stimulus is required, as for promoting or exciting the menstrual flux; whilst the latter is better calculated to act as a common purge.

PREPARATIONS.

Powder of Aloes with Canella. (Pulvis Aloes cum Canella. L. D.)

Take of socotrine aloes, (Hepatic aloes, D.) one pound;
——— white canella, three ounces:
Powder them separately, and then mix them.

This was formerly well known by the title of Hiera Picra. The spicy canella acts as a corrigent to the aloes, but the compound is more adapted to be formed into pills, than to be used in the state of powder. It is a convenient medicine for costive habits not subject to the piles. Dose 10 grains to a scruple at bed-time.

Aloetic Powder with Guaiacum. (Pulvis Aloes cum Guaiaco. L. D.)

Take of socotrine aloes, one ounce and a half; (Hepatic aloes, D.)
——— gum guaiacum, one ounce;
——— aromatic powder, half an ounce:
Rub the aloes and gum guaiacum separately to powder; then mix them with the aromatic powder.

This powder is supposed to combine the sudorific effects of the guaiac with the purgative of the aloes. It is given in the rheumatism. The dose is ten grains to a scruple, night and morning.

Aloetic Powder with Iron. (Pulvis Aloeticus cum Ferro. L.)

Take of socotrine aloes, an ounce and a half;
——— myrrh, two ounces;
——— dry extract of gentian,
——— vitriolated iron, of each one ounce:
Reduce them separately to powder, and mix them.

This combination is sufficiently judicious, as in some cases the combined effects of an aloetic and chalybeate prove of very great advantage. But powder is a bad form of exhibiting aloes; we would therefore recommend it to be formed into pills or boluses, with a little mucilage. It is given in chlorosis. The dose is five grains to a scruple.

Aloetic Pills. (Pilulæ Aloeticæ. E.)

Take of aloes, in powder,
——— soap, equal parts.
Beat them with simple syrup into a mass fit for making pills.

Pills of Aloes and Ginger. (Pilulæ Aloes cum Zingibere. D.)

Take of hepatic aloes, one ounce;
——— ginger root, in powder, one drachm;
——— soap, half an ounce;
——— essence of peppermint, half a drachm.
Powder the aloes with the ginger, then add the soap and the oil, so as to form an intimate mixture. Forms an excellent purge for costive habits, in the dose of five to ten grains.

Compound Pills of Aloes. (Pilulæ Aloes Compositæ. L.)

Take of socotrine aloes, powdered, one ounce;
——— extract of gentian, half an ounce;
——— oil of caraway seeds, two scruples;
——— syrup of ginger, as much as is sufficient:
Beat them together.

Although soap can scarcely be thought to facilitate the solution of the aloes in the stomach, as was supposed by Boerhaave and others, it is, probably, the most convenient substance that can be added, to give it the proper consistence for making pills. When extract of gentian is triturated with aloes, they re-act upon each other, and become too soft to form pills, so that the addition of any syrup to the mass, as directed by the London college, is perfectly unnecessary; unless, at the same time, some powder be added to give it consistency.

These pills are much used as warm and stomachic laxatives: they are very well suited for the costiveness so often attendant on people of sedentary lives, and, upon the whole, are one of the most useful articles in the materia medica. The dose about ten grains.

Pills of Aloes and Assafœtida. (Pilulæ Aloes et Assæ Fœtidæ. E.)

Take of socotrine aloes, in powder,
——— assafœtida,
——— soap, equal parts:
Form them into a mass, with mucilage of gum Arabic.

These pills, in doses of about ten grains, twice a-day, produce the most salutary effects in cases of dyspepsia, attended with flatulence and costiveness.

Pills of Aloes with Colocynth. (Pilulæ Aloes cum Colocynthide. E.)

Take of socotrine aloes,
——— scammony, of each eight parts;
——— colocynth, four parts;
——— oil of cloves,
——— sulphate of potass with sulphur, of each one part:
Reduce the aloes and scammony into a powder, with the salt; then let the colocynth, beat into a very fine powder, and the oil, be added: lastly, make it into a proper mass with mucilage of gum Arabic. This suits best very costive habits of body.

PILLS OF ALOES AND MYRRH. (Pilulæ Aloes et Myrrhæ. E.)

Take of socotrine aloes, four parts;
——— myrrh, two parts;
——— saffron, one part:
Beat them into a mass with simple syrup.

Lond.

Take of socotrine aloes, two ounces;
——— myrrh,
——— saffron, of each one ounce;
——— syrup of saffron, as much as is sufficient:
Powder the aloes and myrrh separately; and, afterwards, beat all the ingredients together into a mass.

These pills have long continued in practice, without any other alteration than in the syrup with which the mass is made up, and in the proportion of saffron. The virtues of this medicine may be easily understood from its ingredients. Given to the quantity of half a drachm, or two scruples, they prove considerably cathartic, but they answer much better purposes in smaller doses as laxatives.

ETHEREAL TINCTURE OF ALOES. (Tinctura Aloes Ætherea. E.)

Take of socotrine aloes,
——— myrrh, of each, in powder, one ounce and a half;
——— English saffron, sliced, one ounce;
——— sulphuric ether, with alcohol, one pound:
Digest the myrrh with the sulphuric ether with alcohol for four days, in a close vessel; then add the saffron and aloes. Digest again for four days, and, when the fæces have subsided, pour off the tincture.

This tincture agrees generally in its effects with the other tinctures of aloes, the only difference arising from the more penetrating and stimulating nature of the menstruum itself. The dose is from one to two drachms in cold water to be taken going to bed. Given in gouty habits.

WINE OF SOCOTRINE ALOES, COMMONLY CALLED SACRED TINCTURE. (Vinum Aloes Socotrinæ, vulgo Tinctura Sacra. E.)

Take of socotrine aloes, in powder, one ounce;
——— lesser cardamom seeds, bruised,
——— ginger, bruised, each one drachm;
——— Spanish white wine, two pounds:
Digest for seven days, stirring now and then, and afterwards strain.

WINE OF ALOES. (Vinum Aloes. L.)

Take of socotrine aloes, eight ounces;
——— canella alba, two ounces;
——— Spanish white wine, six pints;
——— proof spirit, two pints:
Powder the aloes and canella separately; mix them, and pour on the wine and spirit; digest for fourteen days, now and then shaking them; and strain.

It is proper to mix white sand cleansed from impurities, with the powder, in order to prevent the moistened aloes from sticking together.

This medicine has long been in great esteem, not only as a cathartic, but likewise as a stimulus. The dose is from two to four drachms.

It appears from long experience to be a medicine of excellent service. The dose, as a purgative, is from one to two ounces. It may be introduced into the habit, so as to be productive of excellent effects, as an alterant, by giving it in small doses at proper intervals: thus managed, it does not for a considerable time operate remarkably by stool; but at length proves purgative, and occasions a lax habit of much longer continuance than that produced by the other common cathartics.

PRESCRIPTIONS.

℞. 1. Take of socotrine aloes, in powder, drachm ½
——— soap, - - - - - - - - drachm 1½
——— essential aromatic oil of cloves drops 3
——— simple syrup, as much as is sufficient to form a mass:
Make into thirty pills, of which take four every night. Given to open the body in costive habits.

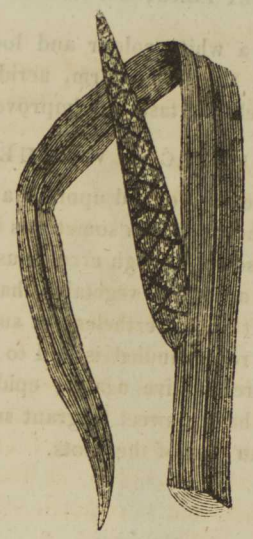
℞. 2. Take of the aloetic powder with iron drachm 1
——— syrup of ginger, as much as is sufficient:
Make sixteen pills, of which take four every night. A good tonic aperient, only gently moving the body and at the same time bracing.

℞. 3. Take of the powder of aloes with guaiacum, scruples 2
——— antimonial powder - - - - scruple 1
——— simple syrup, as much as is sufficient:
Make into sixteen pills, of which two are to be taken every night going to bed. Excellent where perspiration is wanted.

℞. 4. Take of aloetic wine, - - - - - ounces 2½
——— compound spirit of ammonia: ounce ½
Take a tea-spoonfull occasionally in some cold water in very torpid habits.

℞. 5. Take of socotrine aloes, - - - - drachms 2
——— new milk: - - - - - ounces 8
Rub them together for a clyster. This is useful to destroy the ascarides, or little thread-worm.

℞. 6. Take of tincture of aloes, - - - - drachm 1
——— tincture of rhubarb - - - drachms 2
——— cinnamon water, - - - - drachms 6
——— peppermint water, equal quantities:
Make into an opening draught. To be taken on going to bed, and early in the morning, where there is giddiness of the head, to determine to the *aorta descendens*, or descending large artery, leading from the heart, and to stimulate the lower bowels. A very useful purge in paralytic cases.



SWEET FLAG, OR ACORUS.

ACORUS CALAMUS.

Class VI. Hexandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Spadix* cylindrical, covered with floscules: *Corolla* six-petalled, naked: *Style* none: *Capsule* three-celled.

SPEC. CHAR. *Scape* mucronate, very long, foliaceous.

DESCRIPTION.

THE leaves of this plant are long, sword-shaped, sheathing one another, and commonly undulated on one side. The flowers are small, numerous, and produced upon a spadix or conical spike. The capsule is oblong, triangular, and divided into three cells containing numerous oval seeds.

HISTORY.

This plant is perennial, and grows plentifully in rivulets and marshy places about Norwich and other parts of England, in the canals of Holland, in Switzerland, and in other countries of Europe. The shops have been usually supplied from the Levant with dried roots, which do not appear to be superior to those of our own growth.

The root is full of joints, crooked, somewhat flatted on the

sides, internally of a white colour and loose spongy texture: its smell is strong; the taste warm, acrid, bitterish, and aromatic; both the smell and taste are improved by exsiccation.

MEDICAL VIRTUE.

This root is generally looked upon as a carminative and stomachic medicine, and as such is sometimes made use of in practice. It is said by some, though erroneously, to be superior in aromatic flavour to any other vegetable that is produced in these northern climes. It is, nevertheless, a sufficiently elegant aromatic. The fresh root candied is said to be employed at Constantinople as a preservative against epidemic diseases. The leaves of this plant have a sweet fragrant smell, more agreeable, though weaker, than that of the roots.

DRAGON'S BLOOD TREE.

CALAMUS ROTANG.

Class VI. Hexandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* six-leaved: *Corolla* none: *Berry* dry, one-seeded, inversely imbricated.

SPEC. CHAR. *Calyx* six-leaved: *Corolla* none: *Berry* dry, one-seeded, backwards imbricated.

DESCRIPTION.

This may be considered as a scandent kind of palm: the lower part of the stem is hollow, jointed, beset with spines; its upper part takes a horizontal direction, and overruns the neighbouring trees, in extent reaching above a hundred feet. The leaves are several feet long, narrow, sword-shaped, serrated, with spinous teeth. Calyx six persisting leaflets. No corolla. Fruit larger than a filbert, contains a red resinous pulp, which soon becomes dry.

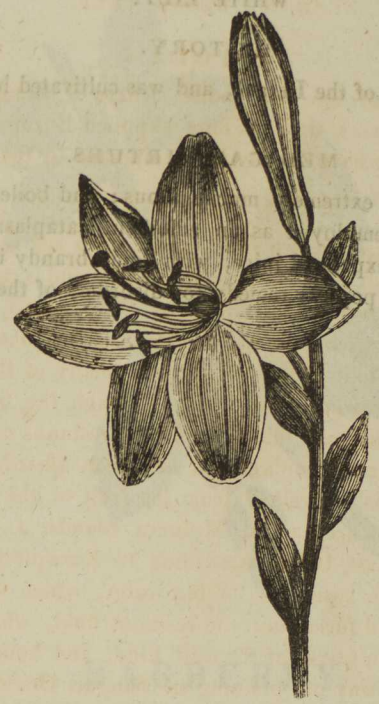
HISTORY.

It is a native of the East Indies, where it commonly grows in woods near rivers, and has long supplied Europe with walking-canes, which have usually been imported by the Dutch.

MEDICAL VIRTUE.

Several trees are known to abound with a red resinous juice, which is obtained by wounding the bark, and is called dragon's blood, as the Pterocarpus Draco or Pterocarpus officinalis of Jacquin, the Dracæna Draco, the Dalbergia monetaria, and the Pterocarpus sontolinus. Besides these, many of the Indian red woods, while growing, pour forth through the fissures of the bark a blood-coloured juice, forming a resinous concretion, to which the name dragon's blood has been affixed. This drug, however, is chiefly obtained from the fruit of the Calamus Rotang, and is procured at the Molucca islands, Java, and other parts of the East Indies, according to Kæmpfer, by exposing this fruit to the steam of boiling water, which softens the external shell, and forces out the resinous fluid, which is then inclosed in certain leaves of the reed kind, and hung in the air to dry. Another way of obtaining the Sanguis Draconis is by simply boiling the fruit in water, inspissating the strained decoction, and drying it in the same manner as the former. In Palimbania the external surface of the ripe fruit is often observed covered with the resin, which is rubbed off by shaking the fruit together in a bag; when this is done, the drug is melted by the sun's heat, and formed into globules, which are folded in leaves: this is deemed the purest kind of dragon's blood; and that which is next in goodness is procured by taking the fruit, which is found to be still distended with resin, out of the bag, and, after bruising it, exposing it to the sun, or boiling it gently in water: the drug then appears floating upon the surface, and is skimmed off and shaped into small cakes.

It is employed in hæmorrhages and fluxes.



WHITE LILY.

LILIUM CANDIDUM.

Class VI. Hexandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* six-petalled, campanulate, with a longitudinal line for a nectary: *Capsule* having its valves connected with netted threads.

Spec. Char. *Leaves* scattered: *Corolla* campanulate, smooth within.

DESCRIPTION.

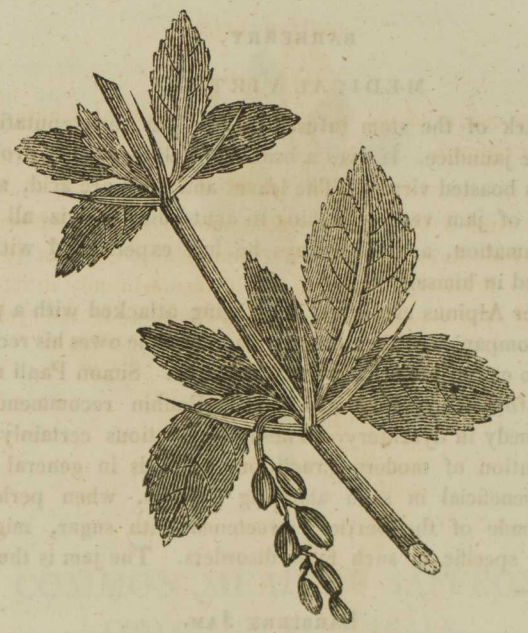
Root bulbous. Stem upright, rising about three feet. Leaves numerous, smooth, without footstalks. Flowers large, white, terminating the stem in clusters upon short peduncles. The corolla is bell-shaped, composed of six petals of a beautiful white colour. Capsule oblong, divided into three cells, containing many flattish seeds of a semicircular shape.

HISTORY.

It is a native of the Levant, and was cultivated here since the time of Gerard.

MEDICAL VIRTUES.

The root is extremely mucilaginous; and boiled with milk and water is employed as an emollient cataplasm to broken breasts. The expressed juice, with some brandy in it, is much boasted of as a popular remedy for disorders of the eyes.



BARBERRY.

BERBERIS VULGARIS.

Class VI. Hexandria. *Order* II. Digynia.

Essent. Gen. Char. *Calyx* six-leaved: *Petals* six: two *glands* at each unguis: *Styles* none: *Berry* two-seeded.

Spec. Char. *Peduncles* racemous: *Spines* triple.

DESCRIPTION.

The flowers are in clusters like the currant: the fruit oblong, red: the leaves oblong-ovate, serrated: stem defended by three thorns.

HISTORY.

It is found wild in our hedges. The stamens have a remarkable sensibility, moving, when touched by any thing, towards the pistillum: a curious fact, discovered by Dr. Smith, the first botanist of the age. Leaves tender, and very subject to the rubigo, which will infect the corn in its neighbourhood.

MEDICAL VIRTUES.

The bark of the stem infused in beer has the reputation of curing the jaundice. It dyes a beautiful yellow; hence probably arose this boasted virtue. The leaves and fruit are acid, and in the form of jam very refreshing in acute disease, viz. all kinds of inflammation, as Haller says he has experienced with patients, and in himself.

Prosper Alpinus mentions, that being attacked with a putrid fever accompanied with a bilious diarrhœa, he owes his recovery wholly to eating the fruit of the barberry. Simon Pauli relates that he found a similar result. J. Bauhin recommends the same remedy in dysentery. These observations certainly merit the attention of modern practitioners, acids in general being found beneficial in such alarming diseases, when perhaps a drink made of the berries, sweetened with sugar, might be found a specific in such fatal disorders. The jam is thus prepared:—

Barberry Jam.

Pick them from the stalks, bake them in an earthen pan: when baked, pass them through a sieve with a large wooden spoon; weigh the barberries, and put their weight of powdered sugar; mix well together, put it in your pans and cover it up; set it in a dry place; when you have filled your pans, sift powdered sugar over the tops.

COMMON MEADOW SAFFRON.

COLCHICUM AUTUMNALE.

Class VI. Hexandria. *Order* III. Trigynia.

Essent. Gen. Char. *Corolla* six-parted: *Tube* radical: *Capsules* connected, inflated.

Spec. Char. *Leaves* flat, lanceolate, erect.

DESCRIPTION.

The root is a double succulent bulb. The flower is large, of a purple colour, and comes directly from the root. The leaves appear in spring, and are radical, and spear-shaped. Corolla consisting of a single petal, divided into six lance-shaped erect segments. Capsule three-lobed, divided into three cells, containing globular seeds, which are not ripened until the succeeding spring, when the capsule rises above the ground upon a strong peduncle.

HISTORY.

Meadow saffron is a perennial bulbous-rooted plant, which grows in wet meadows in the temperate countries of Europe. It flowers in the beginning of autumn, at which time the old bulb begins to decay, and a new bulb to be formed. In the following May the new bulb is perfected, and the old one wasted and corrugated. They are dug for medical use in the beginning

of summer. The sensible qualities of the fresh root are very various, according to the place of growth, and season of the year. In autumn it is inert; in the beginning of summer, highly acrid: some have found it to be a corrosive poison; others say they have eaten it in considerable quantity without experiencing any effect. When it is possessed of acrimony, this is of the same nature with that of garlic, and is entirely destroyed by drying.

MEDICAL VIRTUES.

Stoerck, Collin, and Plenk, have celebrated its virtues as a diuretic in hydrothorax and other dropsies. But it is at best a very uncertain remedy. The expressed juice is used in Alsace to destroy vermin in the hair.

From various observations on the effects of colchicum made by baron Stoerck, and especially upon the infusion of three grains of the fresh root in four ounces of wine, he remarked that its diuretic power was very considerable, and therefore concluded that if its deleterious acrimony were destroyed, it might prove in this character an efficacious medicine: accordingly he digested an ounce of the recent root, sliced, in a pound of vinegar for forty-eight hours with a gentle heat; the vinegar being then strained, it proved acrid to the taste, constringed and irritated the fauces, and excited a slight cough; to obviate which he mixed the vinegar with twice its weight of honey, and gently boiled it down to the consistence of honey, forming an oxymel sufficiently grateful; and which, taken in doses of a drachm, promoted a copious discharge of urine, without producing any inconvenience from its acrimony, though it moderately stimulated the fauces, and absterged the mucus. Thus, like the squill, it was found both expectorant and diuretic; and the successful use of this medicine, in various hydropic disorders in the hospital at Vienna, equalled the baron's utmost expectations. He recommends, at first, a drachm of the oxymel to be given twice a day in any suitable vehicle, and gradually to increase the dose to an ounce or more in a day. Many other practitioners, who employed the oxymel colchici in these complaints, also experienced its good effects, especially in Germany and France, where it continues to be a favourite medicine: in England, however, the colchicum has been less successful, and is very generally thought a less efficacious diuretic than the squill, which excels it still more as an expectorant. The London college,

conformably to the practice of Stoerck, directs an oxymel colchici, and that of Edinburgh a syrup; the latter, however, differs from the former only in using sugar instead of honey.

PREPARATION.

Syrup of Colchicum. (Syrupus Colchici Autumnalis. E.)

Take of colchicum root, fresh, cut into thin slices, one ounce;
——— vinegar, sixteen ounces;
——— double refined sugar, twenty-six ounces:

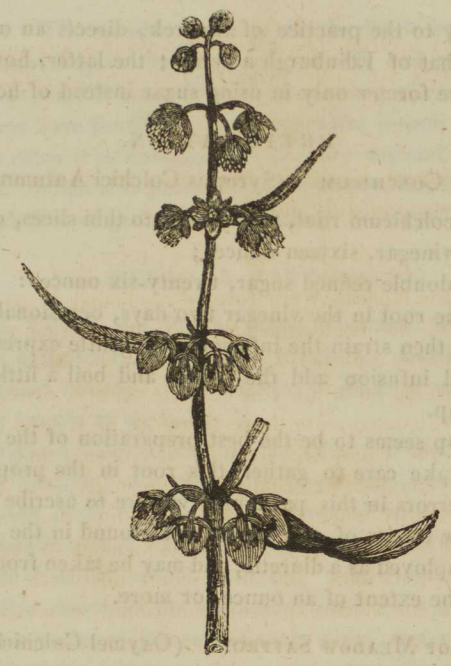
Macerate the root in the vinegar two days, occasionally shaking the vessel; then strain the infusion with gentle expression. To the strained infusion add the sugar, and boil a little, so as to form a syrup.

This syrup seems to be the best preparation of the colchicum. We must take care to gather this root in the proper season; and from errors in this particular we are to ascribe the uncertainty in the effects of this medicine as found in the shops. It is chiefly employed as a diuretic, and may be taken from a drachm or two to the extent of an ounce, or more.

Oxymel of Meadow Saffron. (Oxymel Colchici. L. D.)

Take of the fresh root of meadow saffron, cut into thin slices, one ounce;
——— distilled vinegar, one pint;
——— clarified honey, two pounds by weight:

Macerate the root of meadow saffron with the vinegar in a glass vessel, with a gentle heat, for forty-eight hours. Strain the liquor, pressed out strongly from the root, and add the honey. Lastly, boil the mixture, frequently stirring it with a wooden spoon, to the thickness of a syrup. This is an active preparation, but its use may be entirely superseded by the syrup of the same root. The dose given is a drachm to half an ounce.



WATER DOCK.

RUMEX HYDROLAPATHUM.

Class VI. Hexandria. *Order* III. Trigynia.

ESSENT. GEN. CHAR. *Calyx* triphyllous: *Petals* three, conniving: *Seed* one, triquetrous.

SPEC. CHAR. *Flower* bissexual: *Valves* entire, graniferous: *Leaves* lanceolate, acute.

DESCRIPTION.

THIS plant rises to five feet in height. The upper leaves are long, narrow, and on linear and pointed spikes; those at the bottom are near a foot and a half in length, of a narrow ovate form, somewhat indented, and stand upon long channelled foot-stalks. The flowers are numerous, and hang in whorled spikes upon slender peduncles. The calyx is cut into three pointed segments. The corolla is composed of three petals, which are ovate, narrow, pointed. The capsule is composed of three petals, which by approaching each other assume a triangular form, and in this state are called valves. The seed is solitary, ovate, triangular.

HISTORY.

It is a native of England, and grows in ditches, pools, and rivers. Flowers in July and August.

MEDICAL VIRTUES.

Many of the lapatha were formerly officinal herbs, of which the water dock has been esteemed to be the most efficacious, and by the Edinburgh college is still retained in the Materia Medica: the leaves, which manifest considerable acidity, are said to possess a laxative quality, and have therefore been used to obviate costiveness: the roots are strongly astringent, and have been much employed, both externally and internally, for the cure of scurvy; especially when the gums are spongy, and frequent hæmorrhages supervene. It is also recommended in various other cutaneous defœdations, and in visceral obstructions: and in order to give the hydrolapathum additional importance, Muntingius has taken great pains to prove that it is the Herba Britannica of the ancients; but many physicians still think this root does not peculiarly differ from other astringents, and are sceptical enough to place no faith in the great virtues ascribed to it by Muntingius, and our own countryman Sir John Hill.

COMMON SORREL.

RUMEX ACETOSA.

Class VI. Hexandria. *Order* III. Trigynia.

ESSENT. GEN. CHAR. *Calyx* triphyllous: *Petals* three, conniving: *Seed* one, triquetrous.

SPEC. CHAR. *Flowers* dicœcious: *Leaves* oblong, sagittate.

DESCRIPTION.

IT rises from one to two feet. The radical leaves are arrow-shaped, of a bright green colour, and stand upon long footstalks, but those on the stem are without footstalks, and placed alternate. The flowers are produced in terminal spikes, tinged of a reddish colour. The seeds are single, and of a triangular shape.

VIRTUES.

Sorrel is made by the French into soup with milk, and forms a refrigerant food, useful in phlogistic or inflammatory habits, and in the scurvy.

HORSE CHESTNUT.

ÆSCULUS HIPPOCASTANUM.

Class VI. Heptandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* monophyllous, five-toothed, ventricose: *Corolla* five-petalled, unequally coloured, inserted on the calyx.

SPEC. CHAR. *Leaves* composed of seven large lobes.

DESCRIPTION.

THIS beautiful tree grows to a great height. The leaves are large, digitated, cut into seven divisions, which are long, serrated, ribbed, of a pale green colour, and proceed from a common centre attached to a long footstalk. The flowers terminate the branches in large conical spikes. The capsule is round, tough, fleshy, beset with spines, divided into three valves, and contain two or three roundish seeds of a shining brown colour.

HISTORY.

Though the castanea was well known to the ancients, yet Matthiolus seems to be the first author who describes the horse chestnut, which was brought into Europe about the middle of the sixteenth century, and was so scarce in the time of Clusius

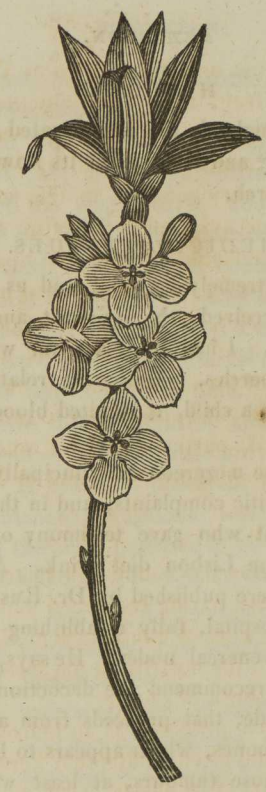
that there was then but one tree known at Vienna, which being too young to bear fruit, nuts were obtained from Constantinople in 1588, after which this tree was very generally propagated. It was cultivated in England by Mr. John Tradescant in 1633, and is now very common in this country. The wood is white, soft, soon decays, and is therefore of little value. The fruit in appearance resembles that of the Spanish chestnut, and is eaten by sheep, goats, deer, oxen, and horses. It contains much farinaceous matter, which by undergoing a proper process, so as to divest it of its bitterness and acrimony, probably might afford a kind of bread: starch has been made of it, and found to be very good: it appears also to possess a saponaceous quality, as it is used, particularly in France and Switzerland, for the purpose of cleaning woollens, and in washing and bleaching linens.

MEDICAL VIRTUE.

Its introduction into the Edinburgh Pharmacopœia was probably owing to its seed having been used and recommended as a sternutatory in some cases of ophthalmia and headach. With this view it was drawn up the nostrils in the form of an infusion or decoction, or in the form of powder.

The bark has been proposed as an indigenous substitute for the very expensive and often adulterated Peruvian bark. Many successful experiments of its effects, when given internally in intermittent and typhous fever, and also when applied externally in gangrene, sufficiently warrant future trials. Although chemical analysis is not yet sufficiently advanced to enable us to determine from it the medical use of any substance, I may observe that the active constituent of this bark is tannin, which is scarcely compatible with the presence of cinchonin, the predominant, and probably the active, constituent of Peruvian bark. In powder it may be given to the extent of a scruple and a half, or a drachm, for a dose. Buchholz prefers a solution of a drachm of the extract in an ounce of cinnamon water, of which sixty drops are to be given every three hours.

The bark intended for medicinal use is to be taken from those branches which are neither very old nor very young, and to be exhibited under similar forms and doses, as directed with respect to the Cortex Peruvianus. It rarely disagrees with the stomach, but its astringent effects generally require the occasional administration of a laxative.



MEZEREON.

DAPHNE MEZEREUM.

Class VIII. Octandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* four-cleft, withering, including the stamina: *Berry* one-seeded.

SPEC. CHAR. *Flowers* sessile, cauline: *Leaves* lanceolate, deciduous.

DESCRIPTION.

THIS shrub grows to the height of four or five feet, and sends off several branches. The exterior bark is of a gray colour. The leaves are few, tender, lance-shaped, and appear at the termination of the branches after the flowers are expanded. The flowers are in thick clusters, each composed of a single petal, cut into four oval segments, of a bright red colour. They produce numerous red berries, containing one round seed.

HISTORY.

It is a native of England, and is cultivated in our gardens on account of the beauty and earliness of its flowers, which appear in February and March.

MEDICAL VIRTUES.

The berries are extremely inviting, and as their acrimony is not immediately perceived, the ignorant and unwary may be tempted to eat them. I had once a sister who died an infant from eating these berries. Withering relates, that twelve of them being given to a child, it vomited blood, and died almost immediately.

In this country the mezereon is principally employed for the cure of some siphylitic complaints, and in this way Dr. Donald Monro was the first who gave testimony of its efficacy in the successful use of the Lisbon diet drink. A few months after this, several cases were published by Dr. Russel, then physician to St. Thomas's hospital, fully establishing the utility of the cortex mezerei in venereal nodes. He says, "The disease for which I principally recommend the decoction of mezereon root, as a cure, is the node, that proceeds from a thickening of the membrane of the bones, which appears to be the cause of the greatest part of those tumours, at least when recent. In a thickening of the periosteum from other causes I have seen very good effects from it." But in the nocturnal pains, accompanying siphylis, unless occasioned by the node itself, he found it necessary to join a solution of sublimate to the decoction. We may also remark, that Dr. Russel never found the decoction to increase any of the natural evacuations. Dr. Cullen observes, that "Dr. Home has not only found this decoction to cure scirrhous tumours, which remain after the lues venerea, and after the use of mercury, but that it healed also some scirrhous tumours from other causes; and that he has employed it in several cutaneous affections, and sometimes with success."

The considerable and long continued heat and irritation that is produced in the throat when mezereon is chewed, induced Dr. Withering to think of giving it in a case of difficulty of swallowing, seemingly occasioned by a paralytic affection. The patient was directed to chew a thin slice of the root as often as she could bear it, and in about a month recovered her power of swallowing. This woman had suffered the complaint three years, and

was greatly reduced, being totally unable to swallow solids, and liquids but very imperfectly.

It has also been used instead of a perpetual blister, occasioning infinitely less pain and inconvenience. For this purpose a square piece of the recent bark, about an inch long, and three quarters of an inch broad, macerated a little in vinegar, is applied to the skin, over which is bound a leaf of ivy or plantain. This application is at first renewed night and morning, till it cauterizes the part and brings on a serous discharge, when a renewal of the bark once in 24 hours is found sufficient to continue the issue for any length of time. By means of suitable plasters we conceive that it might be applied behind the ears to relieve the eyes, and on a larger scale prove an useful practice in sundry diseases. It must be observed, however, that it sometimes produces cutaneous eruptions, which Bergius attributes to the absorption of the acrid particles of the bark.—l. c. vide Essai sur l'Usage et les Effets de l'Ecorce du Garou.

PRESCRIPTIONS.

℞. 1. Take of sarsaparilla, two ounces;
——— liquorice root,
——— mezereon root, of each half an ounce;
——— shavings of guaiacum,
——— shavings of sassafras wood, of each one ounce:
Infuse these ingredients in eight pints of boiling water for twenty-four hours, then boil them until one half of the water be consumed; afterwards strain the decoction. Use this as a diet drink, taking from a pint and a half to one quart during the day. This is employed as an assistant to a mercurial course of alteratives, especially after mercury has been used for some time. It is an improvement on the Lisbon diet drink, and may be given in rheumatism, and cutaneous disorders proceeding from foulness of the blood and juices.

℞. 2. Take of mezereon root, two drachms;
——— boiling water, two pounds:
Boil to a pound. At the end of the boiling add liquorice root, sliced, one ounce: strain.

Two to four ounces are to be taken three or four times a day. With this prescription alone Dr. Russel cured nodes, &c., as before mentioned.

BALSAM OF GILEAD.

AMYRIS GILEADENSIS.

Class VIII. Octandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* four-toothed: *Petals* four, oblong: *Stigma* tetragonal: *Berry* drupaceous.

SPEC. CHAR. *Leaves* ternate: *Peduncles* one-flowered, lateral.

DESCRIPTION.

ACCORDING to Mr. Bruce, the balessan or balm tree grows to the height of fourteen feet: its branches are numerous, spreading, crooked: the wood is white, soft, and covered with a smooth ash-coloured bark: the leaves are small, few, commonly consisting of one pair of pinnæ, with an odd one at the top: the pinnæ are sessile, inversely ovate, entire, veined, and of a bright green colour: the flowers are scattered upon the branches, and of a white colour: the calyx is permanent, and divided at the brim into four small pointed teeth: the petals are four, small, oblong, concave, white: the filaments are eight, tapering, erect, and terminated by oblong antheræ: the germen is egg-shaped, and placed above the insertion of the corolla: the style

is thick, of the length of the filaments, and terminated by a quadrangular stigma: the fruit is of the drupaceous kind, roundish, opening by four valves, and containing a smooth nut.

HISTORY.

Mr. Bruce informs us that the balm tree is a native of Abyssinia, growing among the myrrh trees behind Azab, all along the coast, to the Straits of Babelmandel; and that it was early transplanted into the south of Arabia, and into Judæa 1000 years before the queen of Sheba, who, according to Josephus, gave this tree, among other presents, to king Solomon.

"The bark of the balsam tree," Mr. Bruce says, "is cut with an axe when the juice is in its strongest circulation, in July, August, and the beginning of September. It is then received into a small earthen bottle, and every day's produce gathered and poured into a larger, which is kept closely corked. The opobalsamum, or juice flowing from the balsam tree, at first when it is received into the bottle or vase from the wound from whence it issues is of a light yellow colour, apparently turbid, in which there is a whitish cast, which I apprehend are the globules of air that pervade the whole of it in its first state of fermentation; it then appears very light upon shaking. As it settles and cools, it turns clear, and loses that milkiness which it first had when flowing from the tree into the bottle. It then has the colour of honey, and appears more fixed and heavy than at first. After being kept for years, it grows of a much deeper yellow, and of the colour of gold. I have some of it which I got from the cadi of Medina in 1768; it is now still deeper in colour, full as much as the yellowest honey. It is perfectly fluid, and has lost very little either of its taste, smell, or weight. The smell at first is violent, and strongly pungent, giving a sensation to the brain like that of volatile salts when rashly drawn up by an incautious person. This lasts in proportion to its freshness; for, being neglected and the bottle uncorked, it quickly loses this quality, as it probably will at last by age, whatever care is taken of it."

The balsam which one tree yields is very small, and the collecting of it is tedious and troublesome; hence it is so very scarce that the genuine balsam is rarely if ever exported in a commercial way. The best balsam, according to Alpinus, is at first turbid and white, of a very strong pungent smell, like that of turpentine, but much sweeter and more fragrant, and of a bitter, acrid,

astringent taste: on being kept for some time it becomes thin, limpid, light, of a greenish hue, and then of a gold yellow, after which it grows thick like turpentine, and loses much of its fragrance. Some compare the smell of this balsam to that of citrons, others to that of a mixture of rosemary and sage flowers. The chief mark of its goodness is said to be founded on this, that when dropped on water it spreads itself all over the surface, forming a thin pellicle, tough enough to be taken up upon the point of a pin, and at the same time impregnating the water with its smell and flavour.

MEDICAL VIRTUE.

It appears on Scripture authority, that the great value and use of this drug remounts to very early ages*, as it seems coeval with the India trade for pepper. To enumerate all the virtues and medicinal cases still attributed to it by eastern nations would be outraging the bounds of all rational credibility: but they who are desirous of this information may be gratified by consulting Alpinus. European physicians consider it to be not essentially different from other resinous fluids, or turpentines, especially as we find it imported here; it is therefore generally believed that the Canada and Copaiva balsams will answer every purpose for which it can be employed. In Turkey it is not only in high esteem as a medicine, but also as an odoriferous unguent and cosmetic: its effects with respect to its last-mentioned use seem to depend merely on its stimulating the skin; for it is observed by lady Mary Wortley Montague, that the day after she had used the balsam her face became red and swollen; an inconvenience which she suffered for three days †.

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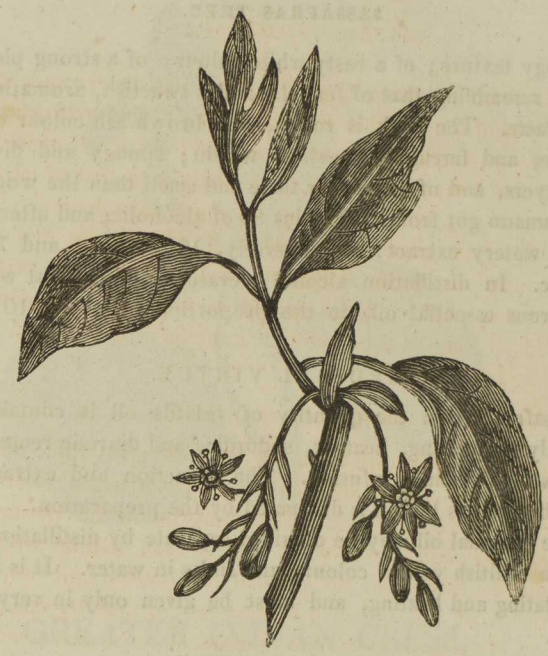
* Balm and myrrh were carried by the Ishmaelites to Egypt.—See Gen. ch. xxxvii. ver. 25.

The high opinion entertained of its virtues we learn from the following verse in Jeremiah:—"Is there no balm in Gilead? is there no physician there? why then is not the health of the daughter of my people recovered?"—Ch. viii. ver. 22.

† See Letter c.



SASSAFRAS TREE.

LAURUS SASSAFRAS.

Class IX. Enneandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* none: *Corolla* calycine, six-parted: *Nectary* glandular, three tubercles, terminating in bristly points, surrounding the germen. *Interior Filament* glanduliferous: *Drupe* one-seeded.

SPEC. CHAR. *Leaves* three lobed, entire.

DESCRIPTION.

It rises to a tree twenty or thirty feet high. The leaves vary in form and size, some being oval and entire, others cut into lobes, of a pale green, veined, downy on the inside, and placed alternate. Flowers in pendent spikes.

HISTORY.

This tree is a native of North America, and is cultivated in Jamaica. It is the wood which is commonly employed. It is brought to us in long branched pieces. It is soft, light, and of

a spongy texture; of a rusty white colour; of a strong pleasant smell, resembling that of fennel; and a sweetish, aromatic subacrid taste. The bark is rough, of a brown ash colour on the outside, and ferruginous colour within; spongy and divisible into layers, and of a stronger taste and smell than the wood.

Neumann got from 480 grains 80 of alcoholic, and afterwards 60 of watery extract; and inversely, 120 watery, and 7·5 alcoholic. In distillation alcohol elevates nothing, but water a ponderous essential oil, in the proportion of about 10 from 480.

MEDICAL VIRTUE.

Sassafras, from the quantity of volatile oil it contains, is a gently stimulating, heating, sudorific, and diuretic remedy.

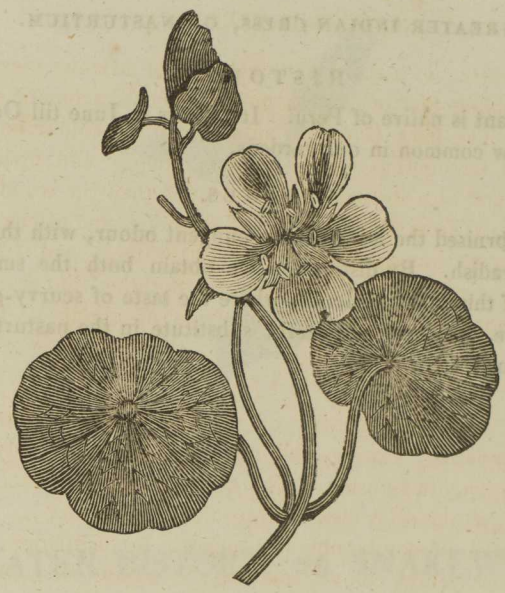
It is best given in infusion. The decoction and extract are mere bitters, as the oil is dissipated by the preparation.

The essential oil may be obtained separate by distillation. It is of a whitish yellow colour, and sinks in water. It is highly stimulating and heating, and must be given only in very small doses.

PREPARATION.

VOLATILE OIL OF SASSAFRAS. (Oleum Volatile Lauri Sassafras.)

The dose is from two to ten drops. This is a powerful stimulant. It enters into what is called a decoction of the woods (Decoctum Sarsaparillæ compositum), which see under the title Sarsaparilla. See also the article Guaiacum, with which it is usefully combined.



GREATER INDIAN CRESS,
OR
NASTURTIUM.
TROPÆOLUM MAJUS.

Class VIII. Octandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* monophyllous, spurred: *Petals* five, unequal: *Berry* three together, dry.

SPEC. CHAR. *Leaves* peltate, sub-five-lobed: *Petals* obtuse.

DESCRIPTION.

STALK trailing, succulent, stretching several feet. Leaves roundish, peltate, marked by several radiated ribs, entire, placed on long waving footstalks, attached to the centre of each leaf. Flowers large, of a bright crimson. Calyx juicy, like the substance, and of the colour of the corolla, with a large horn-like nectary attached to it, cut into five segments, acute, erect, striate. Corolla composed of five petals, roundish, the two upper bent back, marked with dark lines at the bases; the three under are bearded at the base.

HISTORY.

This plant is native of Peru. It flowers in June till October, and is now common in our gardens.

VIRTUES.

When bruised the leaves emit a pungent odour, with the smell of horse-radish. By distillation we obtain both the smell and flavour of this plant. Hence, where the taste of scurvy-grass is intolerable, we have a grateful substitute in the nasturtium of South America.

GREATER BISTORT, OR SNAKEWEED.

POLYGONUM BISTORTA.

Class VIII. Octandria. *Order* III. Trigynia.

ESSENT. GEN. CHAR. *Corolla* five-parted, calycine: *Seed* one, angular.

SPEC. CHAR. *Stem* simple, swelled at the joints: *Leaves* ovate, running into the petioles.

DESCRIPTION.

THE root is about the thickness of the little finger, of a blackish colour on the outside, and reddish within; it is writhed or bent vermicularly (whence the name of the plant), with a joint at each bending, and full of bushy fibres: the root of this species has, however, generally but one or two turns, others three or more. The stalk is simple, about a foot and a half in height. Radical leaves oval, or rather heart-shaped; the upper leaves narrower, undulated, and embrace the stem. The flowers are clustered in a spike, and terminate the stem. These are of a light red colour. The corolla is tubular, divided into five small oval segments, which are at the base supplied with several nectariferous glands.

HISTORY.

Bistort grows wild in moist meadows in Britain, and flowers in May.

MEDICAL VIRTUE.

Dr. Cullen observes, that the bistorta, "both by its sensible qualities, and by the colour it gives with green vitriol, and by the extracts it affords, seems to be one of the strongest of our vegetable astringents, and is justly commended for every virtue that has been ascribed to any other. As such we have frequently employed it, and particularly in intermittent fevers, and in larger doses than those commonly mentioned in Materia Medica writers. Both by itself, and along with gentian, we have given it to the quantity of three drachms a day." The dose of the root in substance is from a scruple to a drachm.

The great Boerhaave recommends "a decoction of it, or the tincture, for fixing of loose teeth, diabetes, a too abundant female relief, in passing of blood by any outlet, vomiting, diarrhœa, and to prevent miscarriages. He says that the bistort and tormentil root have an equal claim to astringency, and therefore equal virtues."

"Hæc planta à virtute adstringente laudatur quam maximè ita, ut nullum medicamentum scopo adstringente præscribatur, quin ingrediatur bistortæ et tormentillæ radix, quæ pari passu ambulant, sic ut hic habeamus maximum roborans et adstringens, ita ut in omni morbo, ubi statim rhabarbarum et herbam patientiæ laudavi quoad partem adstringentem, conveniat; si verò cum aceto vel vino coquatur, tum hoc decoctum est optimum ad dentes vacillantes lavandos, et hoc modo dentis tormenta à laxitate curantur, si decoctum ad locum accedere possit: hinc in omni morbo convenit, ubi nimia fibrarum laxitas adest, ut in diabete humorum, in hæmorrhagiis, in fluxu mensium nimio, mictu sanguineo, in vomitu, diarrhœa et præcavendo abortu."

CAMPHOR TREE.

LAURUS CAMPHORA.

Class IX. Enneandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* none: *Corolla* calcyne, six-parted: *Nectary* glandular, three tubercles, terminating in bristly points, surrounding the germen: *Interior Filament* glanduliferous: *Drupe* one-seeded.

Spec. Char. *Leaves* lanceolate-ovate.

DESCRIPTION.

This tree grows to a considerable height. Leaves ovate, lance-shaped, entire, smooth, nerved, on the upper side of a pale yellowish green, on the under glaucous, standing upon long footstalks. The flowers are small, white, on long footstalks, proceeding from the alæ of the leaves. No calyx. The corolla is composed of six ovate, concave, unequal petals.

HISTORY.

The camphor laurel grows in great abundance, and to a very considerable size, in the forests of Japan. It is not uncommon in green-houses in England. Every part of the tree smells strongly of camphor, which is obtained from the trunk, branches, and root, by distillation. They are cut down into small pieces,

and put into a still with a proportion of water. After the water has been kept boiling forty-eight hours, the camphor is found adhering to the straw with which the head of the still is lined. In this state it is imported by the Dutch, and is called crude camphor. It is very impure, consisting of small brownish or dirty-gray grains, mixed with straw, wood, hair, and other impurities. From these it is purified in Holland by a second sublimation in glass vessels; being previously mixed with quick-lime, to combine with and prevent any empyreumatic oil with which it may be contaminated from subliming, while the camphor concretes in the upper part of the vessel into cakes, convex on the one side and concave on the other, about two or three inches thick, thinner at the edges, and generally perforated in the middle.

Pure camphor is lighter than water, very white, pellucid, somewhat unctuous to the touch, brittle, yet tough and elastic, so as to be scarcely pulverizable; shining in its fracture, and crystalline in its texture; of a bitterish, aromatic, pungent taste, yet accompanied with a sense of coolness, of a strong and very penetrating smell; very volatile, inflammable, burning entirely away, without leaving any coal or ashes; capable of combining with the resins and balsams; soluble in alcohol, æther, fixed and volatile oils, and the concentrated sulphuric, nitric, muriatic, fluoric, and acetic acids; separable from these alcoholic and acid solutions by water; insoluble in water, alkalis, and the weaker acids; decomposed by heat, when mixed with alumina, into an essential oil and charcoal; and by treating it with a sufficient quantity of nitric acid, forming a portion of camphoric acid; and by treating it with sulphuric acid, forming artificial tannin.

But the production of camphor is not confined to the Laurus camphora, although it furnishes almost all the camphor of commerce; it is found in very great purity in interstices among the woody fibres of an unknown tree in Borneo; it is also contained in the roots of the Laurus cinnamomum and cassia, Alpinia galanga, Amomum zedoaria, &c.; in the seeds of the Amomum cardamomum, Piper cubeba, &c.; and in many indigenous plants, as in the Thymus serpyllum and vulgaris, Juniperus communis, Rosmarinus officinalis, Salvia officinalis, Mentha piperata, &c.; and may be separated from the essential oils of rosemary, lavendar, marjoram, and sage. An artificial camphor may also be prepared, by directing a stream of muriatic acid gas into oil of

turpentine, differing from common camphor in not being soluble in weak nitric acid, nor being precipitated by water from its solution in strong nitric acid. Camphor is now universally considered as a peculiar principle of vegetables, and not as a resin, as stated by the Dublin college.

MEDICAL USE.

Camphor is a very active substance when taken into the stomach. It increases the heat of the body considerably, and gives a tendency to diaphoresis, but without quickening the pulse. At first it raises the spirits, but produces a subsequent depression, and facilitates voluntary motion. In excessive doses it causes syncope, anxiety, retchings, convulsions, and delirium. These violent effects of camphor are most effectually counteracted by opium.

In a morbid state of the body, camphor allays inordinate actions. When the pulse is hard and contracted, it renders it fuller and softer. It removes spasms, and flitting pains arising from spasms; and in delirium, when opium fails of procuring sleep, camphor will often succeed. It is also said to correct the bad effects of opium, mezereon, cantharides, and the drastic purgatives and diuretics. The most general indication for the use of camphor, is the languor or oppression of the *vis vitæ*.

Dr. Cullen gives us the following account of this important remedy:—Camphor has been employed in fevers of all kinds, particularly in nervous fevers attended with delirium and much watchfulness; and in such I have frequently employed it with advantage. Some time ago I have often seen it employed by my fellow-practitioners in such cases; and that the good effects of it did not always appear, I imputed to its being used only in small quantities. Since we came into the free use of wine and opium, camphor has been little employed in the practice of this country. The use of it, however, has been very fully established by some of the most eminent physicians on the continent; among these I reckon the late learned and experienced Werlhoff, who often employed it in many inflammatory diseases with great benefit, and plainly gives us his opinion in favour of its refrigerant power.

The use of this medicine has been especially remarkable in putrid fevers, of which, indeed, we have not many instances in this country; but from the very remarkable antiseptic powers

which it discovers in experiments out of the body, it is very probable, that when thrown into the body in large quantities, so that at least its more subtile parts may be diffused over the whole system, it may be expected to produce considerable antiseptic effects. Its power in resisting and curing gangrene, in the experiments of Collin, are very remarkable; but whether that power be owing to its antiseptic virtue alone, or to its operation at the same time on the nervous system, I would not rashly determine.

Both from its use in low, or what are called malignant fevers, and from its antiseptic powers, it is highly probable that it has been of great service in the confluent small-pox. It is also likely that it may be of service in favouring the eruption of exanthemata, and of bringing them back to the skin, when from any cause they had suddenly receded, though I have no particular experience of this.

These are the cases of acute diseases in which camphor has been useful; and its use in many chronic cases is equally well authenticated. Whenever diseases depend upon a mobility of the nervous power, and an irregularity of its motions, it may be expected that such a powerful sedative should be of service. Accordingly, many practitioners have reported its virtues in hysteric and hypochondriac cases; and I myself have had frequent experience of it.

In spasmodic and convulsive affections it has also been of service; and even in epilepsy it has been useful. I have not, indeed, known an epilepsy entirely cured by camphor alone, but I have had several instances of a paroxysm, which was expected in the course of a night, prevented by a dose of camphor exhibited at bed-time; and even this when the camphor was given alone: but it has been especially useful when given with a dose of cuprum ammoniacum, of white vitriol, or of the flowers of zinc.

Since the report of Dr. Kinnier, in the Philosophical Transactions, vol. xxxv., camphor has been often employed in cases of mania; and I have given above an account of a trial which I had made of it. In that case, however, it was not successful; nor in several other trials has it been more so with me, or other practitioners in this country.

We have had here lately, in a patient under the care of Mr. Lata, surgeon, a notable example of the use of camphor in

a maniacal case, which I think it proper to take notice of here.

This shows clearly enough the power of camphor in mania; and I have only to add, that though in several other instances it has not made a cure, it has not in any instance of a moderate dose, that is, not exceeding half a drachm, occasioned any disorder in the system; and in several cases it has induced sleep, and rendered the mind for some time more quiet.

I observe that by large doses De Berger has been more successful; and perhaps the reason of our failure has been our not attending to his admonition. In his letter to Werlhoff on the subject of camphor he has the following passage: "Multoties hoc remedio in meâ praxi utor, præcipue in inflammationibus internis, magno cum successu, et demiror tam multos medicos ab usu ejus interno abhorrere. Non diu est, quod præmissis præmittendis maniacum eo sanitati penitus restitui. In eo vero momentum præcipuum situm est, ut sufficiente dosi et diu satis exhibeatur."

This is particularly confirmed by a case given by Joerdens in the *Commercium Norimbergense*. In several other writers there are accounts of maniacal and melancholic cases cured by the use of camphor; but many of the practitioners who report such cures acknowledge, that in many cases it had disappointed their expectations. Whether these failures have been owing to the not employing at the same time nitre, vinegar, and some other remedies which are supposed to contribute much to the virtues of camphor, we would not determine; but we are clear that mania is a disease of considerable diversity with respect to its causes, and that there are certain cases of it only to which camphor is properly adapted. In cases of an organic affection of the brain, it is hardly to be supposed that camphor or any other remedy can be of use.

I have mentioned above that several practitioners have employed camphor in the most acute inflammatory diseases; and therefore we are not surprised to find that it has been given also internally in cases of acute rheumatism; and it is said to have been with advantage. We have no experience of it, because we have found another method of cure generally successful; but I take this occasion to mention its external use as often of great service in removing the rheumatic pains of the joints or muscles. This we have often experienced, and have no doubt of camphor

having a peculiar power in taking off the inflammatory state in cases both of rheumatism and gout. In the case of rheumatism it is a matter of common experience; in the case of gout it is more rare; but I have had the following particular example of it. A gentleman had brought from the East Indies an oil of camphor, a native substance, which seemed, by its smell and taste, to be no other than camphor in that form, and which I perceive to be mentioned by naturalists as a native substance, produced by several trees in the East Indies. This the person possessed of recommended to all his acquaintances as an infallible remedy for gout and rheumatism; and a gentleman who had often laboured under the gout, and then felt the pains of it unusually severe, was persuaded to apply it. He had then the gout exceedingly painful in the ball of the great toe, and instep of one foot. On this part he rubbed a quantity of the oil of camphor; and in about half an hour, or a little more, he was entirely freed from the pain he had before. In less, however, than an hour after, he had a pain and inflammation come upon the same part of the other foot. As the pain here became pretty severe, he again employed the oil of camphor, and with the same effect of soon relieving the pain very entirely. The consequence of this was also the same; for in less than an hour the pain and inflammation returned to the foot that had been first affected: and here again our patient, obstinate in persisting in the trial of his remedy, again applied the oil, and he had the same success as before in relieving the part affected, and with the same effect also of occasioning a translation. But here the translation being made to the knee, the patient abstained from any further application of the oil, and suffered the pain of the knee to remain for a day or two, and till it went off by some swelling and desquamation in the usual manner.

This history shows sufficiently the power of camphor in relieving the inflammatory spasm and pain of the part chiefly affected; but at the same time that it has no effect on the diathesis of the system, and that, when that subsists, as camphor is ready to occasion a translation, it will always be employed in gouty cases with great danger. In cases of acute rheumatism we have had occasion to remark, that a strong solution of camphor in oil would relieve the pain of the joint for the time chiefly affected; but it was very often with the translation of it to another joint

soon after; and we have therefore long ago ceased from employing such an application in all cases when an acute rheumatism was very general and strong in the system.

It may be supposed that it is analogous to this power of camphor in taking off an inflammatory state, that this medicine has been often found so useful in relieving toothach; and I have no doubt that camphor operates by the power mentioned in relieving toothach, but it is also by exciting a copious flow of saliva and mucus from the internal surface of the mouth, that water somewhat impregnated with camphor, employed to wash the mouth, has been frequently of service in relieving the disease.

However it may be with respect to toothach, we have no doubt that the antiphlogistic nature of camphor may be of use in curing ophthalmia; and this gives a good ground for the many attempts that have been made to introduce camphor into the medicines intended to be employed externally in the cure of ophthalmia.

We have now mentioned many of the virtues of camphor as employed by itself, and must now mention some instances of its peculiar utility when combined with other medicines.

When combined with drastic purgatives, it is said to moderate their acrimony, and thereby their violent operation. We have not, indeed, perceived this, and perhaps never tried it in a proper manner; but in the mean time the respectable authority of Mr. Lasonne, the father, satisfies me that it is well founded.

Another opinion that has been very general is, that camphor has the power of correcting the acrimony of cantharides. In opposition to this, we would not quote the facts given by Dr. Heberden of two several instances in which camphor seemed to occasion strangury; for I must conclude these facts to have been very accidental occurrences, as I have employed camphor fifty times, even in large doses, without my ever observing its having any effect upon the urinary passages. Mr. Lasonne, the father, has observed, as I have done frequently, that camphor, though given very largely, never discovers its smell in the urine, whilst it frequently does it in the perspiration and sweat.

It was formerly a frequent practice in this country to anoint a blistering plaster that was to be applied to the back, or other part, with camphorated oil, and this with a view of preventing strangury from the cantharides. The practice, however, has been long ago laid aside, because it was perceived that, in most

persons, if the plaster was allowed to continue applied for above twelve hours, and while at the same time it was omitted to give the patient a large quantity of drink, a strangury would come on notwithstanding the unction of camphorated oil, and even the exhibition of a quantity of camphor internally. The practitioners of this country have lost their faith in the power of camphor in correcting the acrimony of cantharides; and for preventing the strangury that might otherwise arise, they trust entirely to a large exhibition of Arabic emulsion, and to the plaster's not being allowed to lie on too long.

Another virtue ascribed to camphor in combination, is its moderating the action of mercury; and if the saline preparations of mercury are triturated with a portion of camphor, this abstracts a part of the acid that had been united with the mercury, and therefore renders the preparation more mild than before, and at the same time does not deprive entirely the preparation of much of its deobstruent virtue. This we have had experience of in that very acrid preparation of mercury the turbeth mineral, and also in the mercurius dulcis or calomel, which, by being triturated with camphor, become less purgative, and less ready to excite salivation. How far this mitigation of the preparations of mercury leaves them equally powerful as before in the cure of siphylis, I cannot certainly determine; but am of opinion that it does not, if they be employed in the same quantities as they would have been before.

This mitigation of the saline preparations of mercury, by a combination with camphor, will be readily admitted; but many practitioners go further, and allege that mercury, in every condition, united with camphor, becomes a more mild substance, less irritating to the system, while it is equally powerful in curing the diseases to which it is otherwise adapted. I must admit the experience of the practitioners of France in this matter, but those of this country know nothing of it; and I can assert, that in many trials a quantity of camphor added to our common mercurial ointment, neither prevented the unction, in the usual quantity, from exciting salivation, nor rendered the symptoms of it more mild than usual.

A peculiar combination of camphor, said to have considerable effects, is that with opium. The employment of opium is in many persons attended with some inconvenience and disorder, as I have observed above; and every practitioner knows it to

be alleged by some respectable persons, that camphor joined with it prevents these disorders. It may be so, but I have not found it in my experiments. I have found large doses of camphor dispose to sleep, but commonly with that same confusion of head, and turbulent dreams, which sometimes arise from the use of opium; and I have not found that a small quantity of camphor has any effects in increasing the power of opium, or of rendering the operation of it different from what it would have been if employed alone. But against the respectable authorities of Lasonne and Halle, I must suspect that my experiments have not been made properly, or often enough.

There is still another instance of the improvement of a medicine by a combination with camphor. Mr. Lasonne assures us that camphor, joined with the Peruvian bark, gives it more energy and force, whether it be to be employed for the purpose of curing fever or gangrene; and I believe this to be well founded.

After thus treating of the virtues of camphor, we must speak of its dose and exhibition. It will appear clearly from what is said above, that it may be given in doses of very different quantities; and it appears to me from many trials, that doses of a few grains, repeated only after long intervals, have hardly any effect at all, and that, to obtain sensible effects from it, it must either be given in large doses, not under that of twenty grains, or, if given in smaller doses, these must be repeated frequently after short intervals. The latter practice is preferred by some eminent practitioners. To what length in either way we may proceed, I have not experience enough to determine with any precision. From the effects of two scruples given in one dose in the case narrated above, and in another quoted from Dr. Hoffman, it would appear that such doses are violent and dangerous; but from some other experiments it appears that larger doses have been sometimes given with impunity: and when it is given in divided doses, it appears from Collin's experiments that it may be given to the quantity of a drachm, or two drachms in the course of a day; and in one of his experiments it was given to the quantity of half an ounce: and the same will appear from the history which I have given above. It is probable that from large doses only considerable effects are to be expected; and as, from many experiments, it appears that the effects of camphor are not very durable in the body, it will be obvious that the

repeated and long continued use of it may be necessary to the cure of several diseases.

With respect to the exhibition of this medicine, it is, in the first place, necessary that it should be always very minutely divided, as we know it is not readily dissolved in the stomach; and while it remains there it will float on the surface of the other contents, and in that way be applied to the upper orifice of the stomach, and give occasion to some pain there. It ought therefore to be minutely divided before it be given; and this may be done by rubbing it first in a mortar with any dry powder, such as nitre, or hard sugar: but to make certain of a minute division, it is proper at the same time to add a few drops of rectified spirit of wine, or of other such spirituous menstruum as the spiritus vitrioli dulcis, or liquor anodynus mineralis of Hoffman.

It may also be divided by rubbing it with the mucilage of gum Arabic; but this will also be more perfectly executed if the camphor is previously dissolved by a little spirit of wine or expressed oil. By its being diffused in the mucilage of gum Arabic, it may be again diffused in any watery fluid for more convenient exhibition; but it is to be observed, that camphor diffused in a watery fluid is ready to exhale from it, or rise to its surface, and to render the exhibition more disagreeable. When, therefore, any large quantity of water in which camphor is diffused is to be prepared at once, it is proper to employ some means for entangling the camphor. Sugar alone does not seem to be sufficient for the purpose; and it is more effectually done by triturating the camphor with mucilage alone, or with a portion of sweet almonds, and diffusing it again by means of mucilage into an emulsion.

It has been thought that the virtues may be increased by exhibiting along with it a portion of nitre; but in many trials I have not been sensible of the benefit derived from the nitre, which, in any quantity that can be conveniently employed, has little effect on the system. It is with more probability alleged, that vinegar exhibited with camphor is of service. Vinegar certainly gives the best means of correcting the taste of camphor, and seems even to render it less disagreeable to the stomach; and we may allow that, both by its refrigerant and antiseptic powers, it may contribute somewhat to the virtues of the camphor.

PREPARATIONS.

1. Camphorated Mixture. (Mistura Camphorata. L. D.)

Take of camphor, one drachm (one scruple, D.);
——— rectified spirit of wine, a little (ten drops, D.);
——— double refined sugar, half an ounce;
——— boiling distilled water, (water, one pint, D.):
Rub the camphor first with the spirit of wine, then with the sugar; lastly, add the water by degrees, and strain the mixture.

2. Camphorated Emulsion. (Emulsio Camphorata. E.)

Take of camphor, one scruple;
——— sweet almonds, blanched, two drachms;
——— double refined sugar, one drachm;
——— water, six ounces:
This last is made in the same manner as the common almond emulsion. Neither of these mixtures are very permanent, as the camphor separates and swims upon the surface in the course of a few days. As extemporaneous prescriptions, they are, however, very convenient modes of exhibiting that active drug, and may be given to the extent of a table-spoonful every three or four hours in cases of lowness. The latter is the more pleasant remedy, and of equal efficacy.

3. Camphorated Tincture of Opium. Paregoric Elixir. (Tinctura Opii Camphorata. L.; sive Elixir Paregoricum. D.)

Take of hard purified opium, in powder,
——— benzoic acid, of each one drachm;
——— camphor, two scruples;
——— essential oil of aniseed, one drachm;
——— proof spirit of wine, two pints:
Digest for ten days (seven, D.), and strain.

In this formula the virtues of the opium and the camphor are combined. It gets an agreeable flavour from the acid of benzoin and essential oil. The latter will also render it more stimulating; but whether it derives any salutary virtues from the former, we do not know. It was originally prescribed under the title of Elixir Asthmaticum, which it does not ill deserve. It contributes to allay the tickling which provokes frequent coughing; and at the same time it is supposed to open the breast, and give greater liberty of breathing. It is given to children against the chincough, &c. from five drops to twenty; to adults, from

twenty to a hundred. Half an ounce, by measure, contains about a grain of opium. Much abuse is made of this: recourse is had to it upon every trivial cold, and it is often taken without a knowledge of its containing so large a proportion of opium, when a fatal habit is induced, with all the pernicious consequences of opium. It is a very heating remedy.

4. Camphorated Acetic Acid. (Acidum Aceticum Camphoratum. D. Acidum Acetosum Camphoratum. E.)

Take of acetic acid, six ounces by measure;
——— camphor, half an ounce:
Reduce the camphor to powder, by triturating it with a little alcohol; then dissolve it in the acid.

The alcohol in this preparation is used merely to facilitate the reduction of the camphor to powder; for the strong acetous, or, as we would rather call it, the acetic acid, is capable of dissolving even a larger proportion of camphor than is directed in the above formula.

This solution is a powerful analeptic remedy. Its vapour snuffed up the nostrils, which is the only method of using it, is one of the most pungent stimuli we possess. It is so extremely volatile and corrosive, that it is difficult to preserve, except in glass phials with round glass stoppers, or in small gold boxes, such as are used for Henry's aromatic spirit of vinegar, for which it is, in fact, an officinal substitute.

5. Tincture of Camphor. Camphorated Spirit of Wine. (Tinctura Camphoræ, vulgò Spiritus Vinosus Camphoratus. E. Spiritus Camphoratus. L. D.)

Take of camphor, one ounce, E. D., four ounces, L.
——— alcohol, one pound, E., two pints, L., eight ounces, by measure, D.:
Mix them together that the camphor may be dissolved.
(It may also be made with a double, triple, &c. proportion of camphor, E.)

These solutions of camphor are only employed for external uses, against rheumatic pains, paralytic numbnesses, inflammations, for discussing tumours, preventing gangrenes, or restraining their progress. They are too pungent to be exhibited internally, and cannot be diluted with water without being totally decomposed.

6. Compound Soap Liniment. (Linimentum Saponis Compositum. L. Linimentum Saponis. D.)

Take of camphor, one ounce;
——— soap, three ounces;
——— spirit of rosemary, one pint:
Digest the soap in the spirit of rosemary until it be dissolved, and add to it the camphor. This is useful to excite action on the surface, and is used to disperse scrophulous enlargements, and to moisten flannel with, and apply it to the throat, in cases of quinsey. It is a more lasting stimulus than the camphorated spirit of wine above.

7. Tincture of Soap with Opium, formerly Anodyne Liniment. (Tinctura Saponis et Opii, olim Linimentum Anodynum. E.)

This is prepared in the same way, and from the same substances, as the simple tincture of soap, but with the addition, from the beginning, of
Opium, one ounce.

These tinctures are only used externally, and possess great efficacy in removing local pains, when rubbed on the affected part. The London and Dublin colleges have omitted the anodyne liniment, probably as it may be easily prepared extemporaneously, by mixing a proportion of laudanum with soap liniment.

PRESCRIPTIONS.

℞. 1. Take of camphor (reduced to powder by adding a few drops of proof spirit of wine), grains 8,
——— antimonial powder - grains 3,
——— conserve of orange-peel, as much as is sufficient:
Make into a bolus, to be taken every six hours. Given in low nervous fevers.

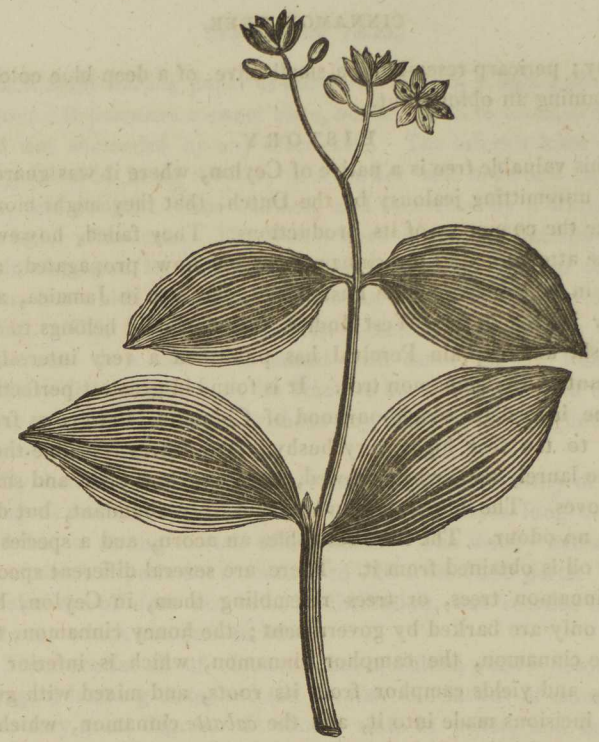
℞. 2. Take of camphor,
——— Russian castor,
——— musk, of each reduced to powder, grains 5;
——— syrup of white poppy, as much as is sufficient:
Make into a bolus, to be taken three times a day. This is given in the last stage of putrid fever, when hiccough comes on.

℞. 3. Take of prepared kali - - - scruples 1,
——— lemon juice - - - ounce ½,
——— camphorated mixture - drachms 12:

Make into a draught, to be taken every four hours. Given in what are called nervous disorders.

℞. 4. Take of camphorated mixture - - - ounces 6,
——— water of acetated ammonia - ounces 2:
Take four table-spoonfuls every six hours. Given under the same circumstances expressed above.

℞. 5. Take of compound soap liniment, ounces $2\frac{1}{2}$,
——— tincture of opium - ounce $\frac{1}{2}$:
A little of this is to be rubbed over the pained part three or four times a day.



CINNAMON TREE.

LAURUS CINNAMOMUM.

Class IX. Enneandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. The same as the preceding.

SPEC. CHAR. *Leaves* three-nerved, ovate-oblong; nerves towards the apex evanescent.

DESCRIPTION.

THIS tree rises twenty feet in height, and extends six feet. It has numerous branches, which are covered with a smooth bark. The leaves are opposite, in pairs, upon short footstalks, ovate-oblong, entire, firm, from three to five inches long, of a bright green colour, and marked with three whitish longitudinal nerves. The flowers grow from the younger branches, and form a kind of paniculated umbel. The petals are six, oval, pointed, concave, spreading, of a greenish white colour. The fruit is

pulpy; pericarp resembling a small olive, of a deep blue colour, containing an oblong nut.

HISTORY.

This valuable tree is a native of Ceylon, where it was guarded with unremitting jealousy by the Dutch, that they might monopolize the commerce of its productions. They failed, however, in the attempt; and the cinnamon tree is now propagated, not only in other parts of the East Indies, but also in Jamaica, and other islands of the West Indies. Ceylon now belongs to the British, and captain Percival has published a very interesting account of the cinnamon tree. It is found in greatest perfection in the immediate neighbourhood of Columbo, and grows from four to ten feet high, very bushy. The leaves resemble those of the laurel, and, when chewed, have the hot taste and smell of cloves. The blossom is white and very abundant, but diffuses no odour. The fruit resembles an acorn, and a species of fixed oil is obtained from it. There are several different species of cinnamon trees, or trees resembling them, in Ceylon, but four only are barked by government; the honey cinnamon, the snake cinnamon, the camphor cinnamon, which is inferior to these, and yields camphor from its roots, and mixed with gum from incisions made into it, and the *cabatte* cinnamon, which is harsher and more astringent than the others. The bark is collected at two seasons; the grand harvest lasts from April to August, the little harvest is in December. Such branches as are three years old are lopped off; the epidermis is then scraped off, the bark slit up, loosened, and removed entire so as to form a tube open at one side. The smaller of these are inserted within the larger, and they are spread out to dry. They are then packed up in bundles. The tasting of these bundles to ascertain their quality is a very disagreeable duty imposed on the surgeons. It excoriates the tongue and mouth, and causes such intolerable pain as renders it impossible for them to continue the occupation two or three days successively. In their turns, however, they are obliged to resume it, and they attempt to mitigate the pain by occasionally eating a piece of bread and butter. It is then made up into large bundles about four feet long, and eighty pounds in weight. In stowing the bales on shipboard, the interstices are filled up with black pepper, a practice which is supposed to improve both spices.

The best cinnamon is rather pliable, and ought not much to

exceed stout writing paper in thickness. It is of a light yellowish colour; it possesses a sweet taste, not so hot as to occasion pain, and not succeeded by any after-taste. The inferior kind is distinguished by being thicker, of a darker and brownish colour, hot, and pungent when chewed, and succeeded by a disagreeable bitter after-taste. The Dutch were accused of deteriorating their cinnamon by mixing it with a proportion of real cinnamon, but which had been deprived of its essential oil by distillation. This fraud could only be detected by the weaker smell and taste. It is also often mixed with cassia bark. This last is easily distinguishable by its fracture being smooth, and by its slimy mucilaginous taste, without any thing of the roughness of the true cinnamon.

By distillation with water it furnishes a small quantity of very pungent and fragrant oil; the water itself remains long milky, and has a strong flavour of cinnamon. The watery extract in Neumann's experiment amounted to 720 from 7680 parts. With alcohol the oil does not arise in distillation, but remains in the extract, which amounts to 960.

The essential oil of cinnamon has a whitish yellow colour, a pungent burning taste, and the peculiar fine flavour of cinnamon in a very great degree. It should sink in water, and be entirely soluble in alcohol. It is principally prepared in Ceylon.

MEDICAL USE.

Cinnamon is a very elegant and useful aromatic, more grateful both to the palate and stomach than most other substances of this class. Like other aromatics, the effects of cinnamon are stimulating, heating, stomachic, carminative, and tonic; but it is rather used as an adjunct to other remedies than as a remedy itself.

The oil is one of the most powerful stimulants we possess, and is sometimes used as a cordial in cramps of the stomach, and in syncope; or as a stimulant in paralysis of the tongue, or to deaden the nerve in toothach. But it is principally employed as an aromatic, to cover the disagreeable taste of other drugs.

PREPARATIONS.

1. Water of Cinnamon. (Aqua Lauri Cinnamomi.)

A pound of bruised cinnamon is to be macerated for a day.

This is one of the most elegant ingredients in the composition of prescriptions, and admirably covers the disagreeable taste of

most drugs, and in some instances renders medicines extremely pleasant; which under certain circumstances is a great recommendation.

2. Tincture of Cinnamon. (Tinctura Lauri Cinnamomi. E.)

Take of cinnamon, bruised, three ounces;
——— diluted alcohol, two pounds and a half:
Digest for seven days, and strain through paper.

Tincture of Cinnamon. (Tinctura Cinnamomi. L. D.)

Take of cinnamon, bruised, one ounce and a half (three ounces and a half, D.);
——— proof spirit of wine, one pint (two pints, D.):
Digest for seven days, and strain.

The tincture of cinnamon possesses the astringent virtues of the cinnamon, as well as its aromatic cordial ones; and in this respect it differs from the spirit prepared by distillation.

This is added by way of covering the taste of drugs, and as a cordial adjunct, in the dose of two drachms.

3. Compound Tincture of Cinnamon, formerly Aromatic Tincture. (Tinctura Cinnamomi Composita, olim Tinctura Aromatica. E.)

Take of cinnamon, bruised,
——— lesser cardamom seeds, bruised, each one ounce;
——— long pepper, in powder, two drachms;
——— diluted alcohol, two pounds and a half:
Digest for seven days, and filter through paper.

Lond. Dub.

Take of cinnamon, bruised, six drachms;
——— lesser cardamom seeds, without the capsules, three drachms;
——— long pepper, in powder,
——— ginger, in powder, of each two drachms;
——— proof spirit, two pints:
Mix and digest for seven days; then strain.

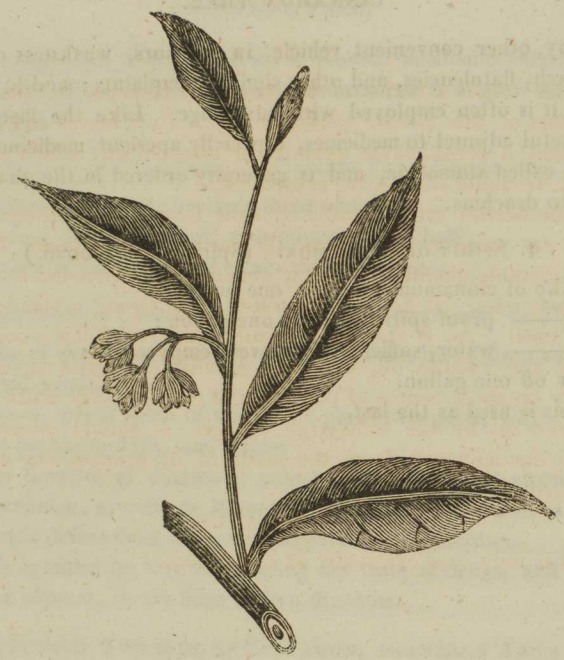
In their formula the Dublin and London colleges diminish the quantity of cardamom seeds, and substitute for it a proportion of ginger. This makes no alteration on the virtues of the preparation, which is a very warm aromatic, too hot to be given without dilution. A tea-spoonful or two may be taken in wine,

or any other convenient vehicle, in languors, weakness of the stomach, flatulencies, and other similar complaints; and in these cases it is often employed with advantage. Like the last, it is an useful adjunct to medicines, especially aperient medicines, or those called stomachic, and is generally ordered in the quantity of two drachms.

4. Spirit of Cinnamon. (Spiritus Cinnamomi.)

Take of cinnamon, bruised, one pound;
——— proof spirit of wine, one gallon;
——— water, sufficient to prevent empyreuma:
Draw off one gallon.

This is used as the last.



COMMON SWEET BAY.

LAURUS NOBILIS.

Class IX. Enneandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. As the preceding.

SPEC. CHAR. *Leaves* veined lanceolate: *Flowers* quadrifid.

DESCRIPTION.

THE bay tree, the crown of victory among poets, and the emblem of peace amongst conquerors, never rises with a stem, but sends forth many radical shoots. The leaves are smooth, often waved at the margin, of a shining green, and stand erect upon short footstalks. The flowers appear in clusters, and the flower-stalks proceed from the alæ of the leaves. The corolla is cut into four upright oval segments, of a yellowish white. It has an oval berry.

HISTORY.

This tree is a native of the south of Europe, but bears the winters of this climate perfectly well. Both leaves and berries contain a considerable quantity of essential oil, which renders them aromatic stimulating substances.

The berries are generally brought from the Mediterranean, and are more pungent than the leaves. In Spain and Italy a considerable quantity of oil is obtained by expression from the fresh berries. It has a green colour, and strong aromatic taste and smell. As it therefore is not a fixed oil, but a mixture of fixed and volatile oil, and as its peculiar properties depend entirely on the presence of the latter, it is incorrectly stated to be a fixed oil by the Edinburgh college. It should rather have been denominated, from the mode of its preparation, an expressed oil.

MEDICAL USE.

It is only used externally as a stimulant.

RHUBARB.

RHEUM PALMATUM.

Class IX. Enneandria. *Order* III. Trigynia.

ESSENT. GEN. CHAR. *Calyx* none: *Corolla* six-cleft, abiding: *Seed* one, triquetrous.

SPEC. CHAR. *Leaves* palmate, acuminate, rough.

DESCRIPTION.

THE stalk rises six or eight feet, erect, round, jointed, sheathed. Radical leaves numerous, large, of a roundish figure, deeply cut into lobes and irregularly pointed segments, standing upon long, smooth, round footstalks. Stalk leaves proceed from the joints, to which they furnish membranous sheaths, and gradually become smaller as they clothe the upper parts of the stem. Flowers terminate the branches in numerous clusters, forming numerous spikes, which appear in May. The germen becomes a seed with membranous margins of a red colour.

HISTORY.

It is a native of Tartary in Asia, and may be cultivated in England.

The first account we have of the rhubarb being raised in England is from Parkinson, who says "he received the seeds from Asia in 1629, from beyond the seas, by a worthy gentleman, Dr. Lister, and the rhapontic rhubarb first grew with him before it was ever seen or known elsewhere in England." This was long supposed to be the true rhubarb, until the waved or undulated rhubarb (*Rheum undulatum*) was discovered. This was raised in the Leyden botanic garden, and the seeds were sent by the great Boerhaave to our famous gardener Miller, in 1759, by the title of the true Chinese rhubarb (*Rhabarbarum Chinese verum*), which succeeded very well, and Linnæus fixed on it the appellation of the true rhubarb (*Rheum rhabarbarum*). But in order to ascertain what the Turkey rhubarb was, which comes from Thibet mountains in Tartary, the great Boerhaave got from a Tartarian rhubarb merchant the seeds of the plants which produced the roots that he annually sold, and were admitted at St. Petersburgh to be the genuine rhubarb. These seeds were soon propagated, and were discovered by him to produce two distinct species; namely, the undulated rhubarb (*Rheum rhabarbarum*) of Linnæus, or, as it has been since called, *Rheum undulatum*; and another, a specimen of which being presented to Linnæus, he declared it to be a new one, and introduced it in his second edition of the Species Plantarum by the name of palmated rhubarb (*Rheum palmatum*). Previous to this De Gorter had repeatedly sent the seeds to Linnæus, but the young plants which they produced constantly perished; at length he obtained the fresh root, which succeeded very well at Upsal, and afterwards enabled the younger Linnæus to describe this plant in the year 1767. But two years antecedent to this, Dr. Hope's account of the palmated rhubarb, as it grew in the botanic garden near Edinburgh, had been read before the Royal Society in London. The seeds were first introduced into Great Britain in 1762 by Dr. Mounsey, who first sent them from Russia; and these seeds were quickly dispersed over the island. At the same time that Dr. Hope cultivated them at Edinburgh, professor Martyn raised abundance of the plants in the botanic garden at Cambridge, from Dr. Mounsey's seeds, which all pro-

duced the rheum palmatum; and I have some of the doctor's original packet still by me. It appears that the seeds sent from St. Petersburgh to this country almost uniformly and constantly produce the rheum palmatum, and not sometimes rheum undulatum also, as De Gorter relates the seeds to have done which Boerhaave obtained from the Tartarian merchant. This, however, does not prove that other species, as the undulatum, and even the compactum (the thick-leaved rhubarb), do not yield the true rhubarb, as well as the palmatum. We have seen that the undulatum was sent from Tartary with the palmatum for the genuine plant; and Georgi relates that a Cossack pointed out the same species to him for the true rhubarb. Both he and Pallas remark, that possibly the root of rheum undulatum may be better on the more southern open and dry mountains of Tibet than on the colder wet mountains of Siberia. Professor Pallas relates, that in Bukharia the rheum palmatum seems to be unknown, and that, as far as he could collect from description, the species they consider there as the true one is the compactum, the seeds of which, Mr. Miller informs us, were sent to him from St. Petersburgh as the true Tartarian rhubarb.

Since the true Russian rhubarb was introduced by Dr. Mounsey in the year 1762, or soon after, and was cultivated by Sir Alexander Dick and Dr. Hope of Edinburgh, with a view to bring it into use as a medicine, it has been a question whether the root could attain the same qualities in our climate that it has where it is a native. That Britain is not too cold for it appears clearly from the success with which it has been cultivated in Scotland; if it meets with any difficulty here, it must be from the moisture of our climate, and there can be no doubt but that a dry soil should be chosen for it. The chief obstruction to giving the root here a quality equal to foreign rhubarb, appears to be the difficulty of curing it properly; but this is in a great measure got over, and no doubt will be fully conquered by further experience, if encouragement should be given to the more extensive cultivation at home of this most useful plant.

And surely rhubarb merits some encouragement, if it be true that not less than 200,000 *l.* is paid annually for what is imported into this country; especially if we consider the difficulty there may be of procuring this article from Russia, the inferiority of the Chinese rhubarb, and the adulterations that are practised to render the foreign drug fair to the eye. There remains only to

convince our countrymen that British rhubarb is equal to the foreign; or, if it be a little inferior, that inferiority is owing merely to a want of skill in curing it, which skill will soon be attained by experience.

The late excellent Dr. Hope, who with Sir Alexander Dick was indefatigable in cultivating the rheum palmatum for medical use, relates, in the year 1784, that most of the apothecaries in Edinburgh used no other than what is raised in Scotland; that for several years there has been no other employed in the Royal Infirmary; and that when a sound root is well dried and properly dressed, it is in no respect inferior to what comes from Russia.

The Society for the Encouragement of Arts, Manufactures, and Commerce has exerted itself for many years in promoting the cultivation of the rheum palmatum in Great Britain, and with much success.

Sir John Dick had the gold medal of the Society for a memoir on the culture and drying of it. Sir William Fordyce, so early as the year 1780, took up three roots, six years old, weighing when washed ten pounds six ounces avoirdupois. He stripped off the bark from the smaller roots, and cut off most of it from the larger parts; and hung them up in festoons on packthread, three or four inches from each other, at a moderate distance from the fire. From these roots he made one pound four ounces of rhubarb, as fit for the market as any imported from Russia, Turkey, or China: he obtained likewise one pound more, fit for private use, or to be powdered. The roots should be cleared entirely of the rind, for the parts which are covered with it will be apt to turn mouldy. Large pieces should have a perforation made through the middle, that they may dry more perfectly, with less fuel and in less time.

At the end of six or seven years, when the plant seems to arrive at its most perfect state, one pound of rhubarb may be obtained from every five pounds of the green roots, besides an equal or larger proportion of roots fit for family use, or powder in the shops.

In 1791 the gold medal of the Society was given to this gentleman for raising above three hundred plants of the true rhubarb from seed, and transplanting them at four feet distance.

Nathaniel Jarman, esq. of Brenley House, in Kent, sowed sixty seeds, being part of those which were sent to the Society by Dr. Mounsey in 1764: they produced forty-five plants. In

1784 he raised upwards of a hundred and twenty plants in the common ground from seeds of the preceding year. He had sent to the Society two roots, weighing twenty-eight and thirty pounds: but this year he sent a single root, which weighed, when taken up on the 16th of October, fifty-six pounds: in a few days it lost four or five pounds, and on the 8th of November, when it was weighed before a committee, it was found to weigh only forty-five pounds. The largest root before produced to the Society by Sir Alexander Dick weighed forty-two pounds.

Mr. Robert Davis the younger, of Minehead, in Somersetshire, merchant, in the spring of the year 1779 sowed some seed of rheum palmatum, which he received from Dr. Brocklesby, and planted out seven hundred and twenty of the plants at the distance of five feet. The soil for the most part was sandy and light, the rest a deep black loamy garden ground. A great number of plants on the first soil died; but those on the latter continued for the most part vigorous, and produced larger roots than the other, although not superior, if equal in quality. It did not appear that the distance of five feet in any respect incommoded or injured the most luxuriant plants.

In the summer of 1783 the whole plantation was taken up, and the number of roots was near, if not quite, four hundred. The whole produced three hundred pounds of dried rhubarb.

The gold medal of the Society was adjudged to Mr. John Ball, surgeon at Williton, in the parish of St. Decuman, in the county of Somerset, for raising, in 1788, upwards of four hundred plants of rheum palmatum, standing six feet asunder each way.

The following year, having by the severity of the winter lost fifty of the four hundred and thirty plants above mentioned, he filled up the vacancies with young plants, and planted upwards of six hundred more at six feet apart, and about two hundred at four feet. For this additional plantation he received another gold medal.

It appears that some of Mr. Ball's roots of five years old weighed, when fresh, upwards of seventy pounds; and that he used the bark for tinctures, finding it full as good in every respect as the best part of the root. His practice is to manure or dress them with rotten dung, coal ashes, lime, mould, old mud wall, &c.

In 1792 Mr. Thomas Jones, of Fish-street-hill, London, planted four hundred and twenty plants of rheum palmatum,

at six feet distance, at Fourtree-hill, Enfield, Middlesex, and had the gold medal adjudged to him by the Society.

The same year Mr. Halley, of Pontefract, in Yorkshire, had the silver medal for producing samples of rhubarb better cured than any that had been produced before. It seems that his father had been in the habit of raising large quantities of the roots, which in war time he disposed of very freely, but in time of peace the druggists procured it from abroad at a lower rate.

In 1793 the gold medal was adjudged to Mr. William Hayward, of Banbury, in Oxfordshire, for raising full eight hundred plants of the true rhubarb; and a third gold medal to Mr. Ball, for possessing one hundred and fifty-eight pounds of it, of his own growth and curing, equal in quality to Turkey or Russia rhubarb; and communicating his culture of it.

The year following Mr. Ball had a fourth gold medal adjudged to him for possessing ninety-seven pounds of the true rhubarb of his own growth, and for communicating the culture and method of cure.

In 1795 Mr. Robert Davis before mentioned, of Minehead, in Somersetshire, had the gold medal for raising nine hundred and thirteen rhubarb plants, and giving some account of their culture. Also the silver medal to Nicholas Ashton, of Woolton Hall, near Liverpool, esq. for sending samples of rhubarb very well cured. This rhubarb was planted in 1778 or 1779, and was taken up and cured in October 1795.

In 1797 the gold medal was adjudged to the Rev. James Stillingfleet, of Hotham, in Yorkshire, for his culture and cure of rhubarb, of which he gives an ample detail. Also to Mr. Thomas Jones above mentioned, for raising nine hundred and thirty-five plants, and giving a full account of his method of culture.

The following year the same Mr. Jones had a reward of thirty guineas from the Society for having raised and planted three thousand and forty plants of the true rhubarb, making up the whole number raised by him nearly five thousand since the year 1792. He here adds many excellent hints respecting its culture.

Again this meritorious gentleman applied for the gold medal, value thirty guineas, in the following address:

To the President.

"Sir,

"The certificate which accompanies this communication will inform the Society that I have planted in the year 1799 four thou-

sand and fifty-three plants of the rheum palmatum, or true rhubarb: I once more, therefore, present myself as a claimant. Each time I have made my appearance in this character I have pledged myself to future and more considerable exertions; for every distinction with which you have honoured me has been viewed in no other light than that of a powerful incentive to perseverance; and I need not add, how much gratification it will afford me if the Society, by their decision on the present occasion, continue to me their good opinion.

"The period I have devoted to the cultivation of this valuable drug has now become of a sufficient length to prove experimentally the truth or falsehood of my theories. Happy am I in reflecting, and happier still in communicating to the Society, that since I last had the pleasure of addressing them I have additional reason for satisfaction. In my former papers (see Transactions of the Society, vol. xi. xv. and xvi.) having been, perhaps, more than sufficiently minute in describing my system of cultivation, I shall now only notice the nature of the soil and aspect, the former of which is a rich sandy loam, and the aspect inclining to the east and south; and as the public are in complete possession of the opinions upon which it is founded, there is no occasion to repeat every particular point in the present instance: I shall therefore content myself with merely mentioning some, and enlarging upon others, as necessity may require.

"Conceiving it to be good policy for a man to avail himself of every advantage that is presented, I have recommended spring as well as autumnal sowings; and the plants of each, when arrived at a proper size, to be placed in the nursery-bed, at its opposite season. I persevere in this practice, lest the summer, in proving too dry, should be equally detrimental as too wet a winter: but as draining the seed-beds may be so easily effected, and the safety of the plants necessarily ensured; so now, without on any account neglecting the former, I principally depend on the latter sowing for a succession: besides, it is attended with the least trouble and expense; and if throughout the operation is well attended to, success is nearly reduced to a certainty.

"Again, I have somewhere observed that a proper mode of cultivation would greatly facilitate the cure of this root; in other words, good management will ensure its welfare till its arrival to a proper age; and that this has ever appeared to me of the most absolute necessity, I have never failed to represent. By nothing

else can it acquire that degree of woodiness, in which I suspect the principal secret of its cure consists. Age, too, is necessary to give the plant its proper growth; otherwise, when it undergoes the operation, its pieces will be diminutive, insignificant, and unprofitable. Above all, it is entirely indebted to age for its medical virtues; and I firmly believe that to this, more than to soil or situation, it is owing that the Turkey has been hitherto considered superior to the English rhubarb.

"In this place permit me to introduce an opinion that I have for some time entertained, viz. that those parts of the root are of the finest quality that are the furthest removed from the seed. This difference is easily discoverable from its earliest stages; and so assured am I of the fact, that, but for want of a supply of offsets, and one or two other considerations, I should be almost tempted to abandon my present, in favour of this mode of cultivation. But though, in this respect, the rhubarb is evidently superior, yet it should be recollected that the other is less precarious, and its growth and produce much more considerable.

"Although, according to every public testimony, of which mention will presently be made, I have reason to believe my progress has been more considerable than that of my contemporaries, if there are any, yet I have no conception that we have arrived at the *ne plus ultra*. Let us rather hope, that every succeeding year will be productive of a degree of improvement proportionate to the advantages of increased experience. As we are so much indebted, therefore, to the age of our plants, let me caution all who have, or may engage in this undertaking, never to yield to impatience; for, with a few persons, the prejudices against the English rhubarb are many, and deeply rooted; and to this source most of them may be traced. Nor is this very wonderful; for to entertain high expectations of rhubarb prematurely taken up, is no less extravagant, than to suppose the capacity of a child equal to that of an adult; yet hitherto our market has been a stranger to any other than such a commodity.

"That I never expected to introduce it into general practice without opposition is evident from my last papers in 1798; for I there remarked, that very probably before this could be effected certain difficulties must be overcome, the principal of which I apprehended to be an almost universal prepossession in favour of foreign commodities. Moderation on the part of the cultivator in the regulation of his prices, and an unwearied attention to

its quality, are the only means likely to produce a counteraction. To great attention to these points I attribute all my success. Mere recommendation ought ever, in such a business as this, to be placed out of the question. If the article will not bear the tests of examination and trial, it should not be indebted to any thing else.

" Whenever I have submitted any specimens to public examination at an hospital or elsewhere, my constant language has been, 'I have no wish but that they may rise or fall according to their own intrinsic merit or demerit; and, if worthy of approbation, by this means induce their general adoption. That this being, no doubt, the ultimate object of the Society of Arts, who have thought proper to honour me with several distinctions, I feel myself impelled to forward it to the utmost, and not remain contented with its mere cultivation.' I have proceeded to state the great expense this country incurs by so large an importation, and on this account urged its general adoption, in order to lessen the expense on the score of duty. That although I am influenced by such motives, and many others, yet my own individual interest I have at the same time fairly acknowledged to be among the number; and I have concluded with expressing a hope, that while pleading the general, as well as my own particular cause, perhaps the benefit of such institutions may be the necessary consequence of introducing a valuable and efficacious medicine at a comparatively trifling expense. I have never yet made this appeal in vain; and the Society will, I dare say, receive with much satisfaction the intelligence that rhubarb of English growth is now used at Guy's (I mention the hospitals in the order of its introduction), St. Thomas's, and St. Bartholomew's; and is under trial at several others. Still further to inform myself of the public opinion, I have lately requested an interview with a numerous and most respectable committee at Apothecaries' Hall: it is impossible, without a breach of propriety, to repeat the compliments its members were pleased to pay me: whether I deserve them or not, it would be equally improper in me to determine; but of this the Society may be assured, I never will rest till I do. In a word, my purpose was fully answered. The article which I exhibited met with the most unqualified approbation, and full permission was given to publish this circumstance. I beg leave, before I conclude, to apologize for the egotism which prevails throughout this communication.

It is scarcely possible to avoid it, when, in cases like the present, a man is under the necessity of speaking of himself.

" It is a subject I have much at heart, and it would give me much real concern to keep back a single circumstance likely to be useful to future cultivators. Its production and adoption, with the attendant difficulties, have been, to the best of my abilities, amply considered; the former in the communications before mentioned, the latter in this paper. If the Society are of opinion that the steps I am pursuing to effect this last and desirable purpose deserve success, it will be highly flattering. Under their auspices I commenced my plantation eight years ago, and I hope and trust my proceedings since have been such that the purpose to which it has been appropriated will occasion no regret.

" I am, sir, your very humble servant,

" Thomas Jones."

Specimens of English rhubarb underwent a severe trial at Bath by three eminent physicians there, Drs. Falconer, Parry, and Fothergill.

Dr. Falconer reports, that the two specimens of English rhubarb answer in external marks to the characters of the drug when good; that they are rather inferior in delicacy of taste to Turkey rhubarb, but superior in some respects to the East Indian; that perhaps they might have resembled the Turkey still more clearly had they been dug up as long a time, and a careful selection of the best pieces had been made. The red colour is said to be improved by keeping; and Linnæus advises it to be kept ten years before it is used. Vogel relates, that an apothecary is sent with the Russian caravan that goes to the borders of China to purchase rhubarb, to whom all the rhubarb is delivered, and he is strictly ordered to select carefully the best pieces only, and to burn all the decayed and bad. Upon the return of the caravan to Moscow or Petersburgh, it is again put into the hands of persons skilled in pharmacy, who have the care of its being properly dressed, and of none but the true sort being admitted; so that after all these cautions none but the choicest and fairest pieces can be exported. If, then, such a selection were made here, and it were kept a due time, the British rhubarb might probably equal any of the foreign; especially if other circumstances were attended to, which will be mentioned when we come to the culture and curing of it.

This account may serve to show both the ardour of this respectable Society in encouraging the growth of this useful article, and the persevering industry of some gentlemen in overcoming all the difficulties attendant on introducing a new plant into cultivation, finding out the means of curing it as an article for extensive sale, and overcoming the prejudices of such as cannot persuade themselves that a drug of British growth can bear a competition with what is sent us from foreign countries.

To conclude: The duke of Athol has raised rhubarb in Scotland which was thought by eminent druggists, and gentlemen of the medical profession in London, to be nearly if not quite equal to the Russian, in smell, taste, and effect. By paying a little more attention to the curing, they conceived that its beauty might be increased; upon which, the year after, his grace sent up specimens of still superior quality.

It having braved the climate of St. Petersburgh, and succeeded well in Scotland, is a sufficient proof of its hardiness. Dr. Robertson informs us, that it grows luxuriantly in Perthshire (latitude 56°); that gardeners and others raise it there in great perfection; and that there is in Scotland a constant demand for it as a medicine.

The general characters of good rhubarb are, its having a whitish or clear yellow colour, being dry, solid, and compact, moderately heavy; brittle; when recently broken appearing marked with yellow or reddish veins, mixed with white; being easily pulverizable; forming a powder of a fine bright yellow, having the peculiar, nauseous, aromatic smell of rhubarb, and a subacrid, bitterish, somewhat astringent taste, and when chewed feeling gritty under the teeth, speedily colouring the saliva, and not appearing very mucilaginous. The size and form of the pieces are of little consequence; only we must break the large ones, to see that they are not decayed or rotten within; and we must also observe that they are not musty or worm-eaten. This is the more necessary, as damaged pieces are frequently so artfully dressed up, and coloured with powdered rhubarb, as to impose on the buyer.

The principal constituent of rhubarb is extractive matter, soluble both in alcohol and in water. By gentle decoction it loses above one-half its weight. Rhubarb also contains some volatile odorous matter, on which its peculiar nauseous smell, and its activity as a purge, depend; for when dissipated, either by age

or any preparation to which the rhubarb has been subjected, the powers of the medicine are almost destroyed. It also contains about one-sixth of its weight of oxalate of lime, and some tannin, which resides entirely in the dark-coloured veins; for, on wetting the surface with a weak chalybeate solution, these alone are blackened, while the white veins do not change their colour. Neumann got from 480 grains 180 of alcoholic, and afterwards 170 watery extract; and inversely, 350 watery, and only 5 of alcoholic extract.

MEDICAL USE.

Rhubarb is a mild cathartic, which operates without violence or irritation, and may be given with safety even to pregnant women and to children. In some people, however, it occasions severe griping. Besides its purgative quality it is celebrated as an astringent, by which it increases the tone of the stomach and intestines, and proves useful in diarrhœa and disorders proceeding from laxity.

Rhubarb is exhibited,

1. In substance, in the form of powder. It operates more powerfully as a purgative in this form than in any other. The dose for an adult is about a scruple or upwards. On account of its great bulk it is sometimes unpleasant to take a sufficient dose; its laxative effects are therefore often increased by the addition of neutral salts, or other more active purgatives. In smaller doses it often proves an excellent stomachic.

2. In infusion. Rhubarb yields more of its purgative property to water than to alcohol. The infusion is, however, considerably weaker than the powder, and requires double the dose to produce the same effect. It is well adapted for children, but must be always fresh prepared.

3. In tincture. On account of the stimulating nature of the menstruum, this preparation frequently cannot be exhibited in doses large enough to operate as a purgative. Its principal use is as a tonic and stomachic.

The virtues of rhubarb are destroyed by roasting, boiling, and in forming the extract.

PREPARATIONS.

Infusion of Rhubarb. (Infusum Rhei Palmati. E.)

Take of rhubarb, bruised, half an ounce;
——— boiling water, eight ounces;
——— spirit of cinnamon, one ounce:

Macerate the rhubarb in a close vessel with the water for twelve hours; then add the spirit, and strain the liquor.

This appears to be one of the best preparations of rhubarb, when designed as a purgative; water extracting its virtue more effectually than either vinous or spiritous menstrua. The dose is from half a drachm to two drachms.

Rhubarb Wine. (Vinum Rhei Palmati. E.)

Take of rhubarb, sliced, two ounces;
——— canella alba, bruised, one drachm;
——— diluted alcohol, two ounces;
——— Spanish white wine, fifteen ounces:
Macerate for seven days, and strain through paper.

Wine of Rhubarb. (Vinum Rhabarbari. L.)

Take of sliced rhubarb, two ounces and a half;
——— lesser cardamom seeds, bruised and husked, half an ounce;
——— saffron, two drachms;
——— Spanish white wine, two pints;
——— proof spirit, half a pint:
Digest for ten days, and strain.

This is a warm, cordial, laxative medicine. It is used chiefly in weakness of the stomach and bowels, and some kinds of loosenesses, for evacuating the offending matter, and strengthening the tone of the viscera. It may be given in doses of from half a spoonful to three or four spoonfuls or more, according to the circumstances of the disorder, and the strength of the patient.

Tincture of Rhubarb. (Tinctura Rhei Palmati. E.)

Take of rhubarb, sliced, three ounces;
——— lesser cardamom seeds, bruised, half an ounce;
——— diluted alcohol, two pounds and a half:
Digest for seven days, and strain through paper.

Tincture of Rhubarb. (Tinctura Rhabarbari. L. D.)

Take of rhubarb, cut into pieces, two ounces;
——— lesser cardamom seeds, bruised, half an ounec;
——— (liquorice root, bruised, half an ounce, D.);
——— saffron, two drachms;
——— proof spirit of wine, two pints:

Digest for seven days, and strain. Dose half an ounce as a purge, or two drachms as a stomachic.

Compound Tincture of Rhubarb. (Tinctura Rhabarbari Composita. L.)

Take of rhubarb, sliced, two ounces;
——— liquorice root, bruised, half an ounce;
——— ginger, powdered,
——— saffron, each two drachms;
——— distilled water, one pint;
——— proof spirit of wine, twelve ounces, by measure:
Digest for fourteen days, and strain. Dose half an ounce, as an aperient.

Tincture of Rhubarb with Aloes, commonly called Sacred Elixir. (Tinctura Rhei et Aloes, olim Elixir Sacrum. E.)

Take of rhubarb, sliced, ten drachms;
——— socotrine aloes, in powder, six drachms;
——— lesser cardamom seeds, bruised, half an ounce;
——— diluted alcohol, two pounds and a half:
Digest for seven days, and strain through paper. Dose half an ounce, as an aperient.

Tincture of Rhubarb with Gentian, formerly Bitter Tincture of Rhubarb. (Tinctura Rhei et Gentianæ, olim Tinctura Rhei Amara. E.)

Take of rhubarb, sliced, two ounces;
——— gentian root, sliced, half an ounce;
——— diluted alcohol, two pounds and a half:
Digest for seven days, and strain through paper. Half an ounce as a purge, or two drachms as a stomachic.

All the foregoing tinctures of rhubarb are designed as stomachics and corroborants, as well as purgatives: spiritous liquors excellently extract those parts of the rhubarb in which the two first qualities reside, and the additional ingredients considerably promote their efficacy. In weakness of the stomach, indigestion, laxity of the intestines, diarrhœas, colic, and other similar complaints, these medicines are frequently of great service.

COMPOUND PILLS OF RHUBARB. (Pilulæ Rhei Compositæ. E.)

Take of rhubarb, in powder, one ounce;
——— socotrine aloes, six drachms;
——— myrrh, half an ounce;
——— volatile oil of peppermint, half a drachm:
Make them into a mass, with a sufficient quantity of syrup of orange-peel.

This pill is intended for moderately warming and strengthening the stomach, and gently opening the belly. A scruple of the mass may be taken night and morning.

PRESCRIPTIONS.

℞. 1. Take of rhubarb, in powder,
——— colombo, in powder, equal parts, grains 3:
To be given every three hours. Most excellent in diarrhœas.

℞. 2. Take of rhubarb, in powder, grains 3,
——— opiate confection - grains 6:
To be given every four hours in the same disease.

℞. 3. Take of rhubarb, in powder - - - grains 15,
——— compound powder of scammony, grains 5:
To be given at bed-time for costive habits.

℞. 4. Take of sliced rhubarb - - - drachms 2,
——— colombo,
——— gentian,
——— rind of orange, equal parts, drachm ½,
——— raspings of quassia - - drachm ½,
——— coriander, bruised - - drachms 2,
——— boiling water - - - - a pint:
Make an infusion, and take half a wine glass occasionally when costive. Excellent in gouty habits.

℞. 5. Take of compound tincture of rhubarb, drachms 2,
——— tincture of catechu - - - drachm 1,
——— tincture of opium - - - - drops 10:
Make into a draught, to be taken three times a day in loosenesses.

SENNA, OR ÆGYPTIAN CASSIA.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-leaved: *Petals* five: *Anthers* above sterile, the lower ones three-beaked: *Fruit* a legume.

SPEC. CHAR. *Leaves* subovate: *Petioles* with glands.

DESCRIPTION.

THE stalk rises from two to four feet, resembling a shrub, and sending out hollow woody stems. Leaves in alternate order, and compound, composed of several pair of oval, pointed, and nerved pinnæ, of a yellowish green colour. Flowers yellow, forming a spike, consisting of five petals. The pod is curved and short.

HISTORY.

It grows principally in Upper Ægypt, from whence the leaves are brought, dried, and picked from the stalks, to Alexandria in Ægypt, and thence imported into Europe. They are of an

oblong figure, sharp-pointed at the ends, about a quarter of an inch broad, and not a full inch in length, of a lively yellowish green colour, a faint, not very disagreeable smell, and a sub-acrid, bitterish, nauseous taste. Some inferior sorts are brought from other places: these may be easily distinguished by their being either narrower, longer, and sharper pointed, from Mocha; or larger, broader, and round pointed, with small prominent veins, from Italy; or large and obtuse, of a fresh green colour, without any yellow cast, from Tripoli.

It has been customary to reject the pedicles of the leaves of senna, as causing gripes and pains in the bowels; but this is a mere prejudice, for both leaves and pedicles act in the very same way. Neumann from 480 parts of senna got 143 alcoholic extract, and afterwards 140 watery; and inversely, 245 watery, and only 28 alcoholic; so that it seems to consist chiefly of mucilage and extractive matter.

MEDICAL USE.

Senna is a very useful cathartic, operating mildly, and yet effectually; and, if judiciously dosed and managed, rarely occasioning the ill consequences which too frequently follow the exhibition of the stronger purges. The only inconveniencies complained of in this drug are, its being apt to gripe, and its nauseous flavour.

These are best obviated by adding to the senna some aromatic substance, as ginger, cinnamon, &c., and by facilitating its operation by drinking plentifully of any mild diluent.

Senna may be given in substance to the extent of about a drachm; but it is rather too bulky, and it is therefore better to divide it into two doses, and to take one half at night, and the other in the morning. It is more conveniently given in the form of infusion, which is generally made by pouring about six ounces of boiling water upon from two to six drachms of senna leaves in a tea-pot, and letting it stand for a few minutes, when it may be sweetened, and a little milk added to it, and taken as tea, or even mixed with tea to deceive children, who will take it so; or this tea may be boiled with sliced apples with sugar with it, when it will be readily taken. Senna ought never to be ordered in decoction, Gren says, because it becomes perfectly inert, from the total dissipation of the nauseous and volatile principle on which its purgative effects depend. The tincture, on account

of the menstruum, cannot be given in doses large enough to purge.

PREPARATIONS.

Simple Infusion of Senna. (Infusum Sennæ Simplex. L.)

Take of senna, an ounce and a half;
——— ginger, powdered, one drachm;
——— boiling distilled water, one pint:
Macerate them for an hour in a covered vessel, and strain the liquor when cold.

Infusion of Senna. (Infusum Sennæ. D.)

Take of senna, three drachms;
——— lesser cardamom seeds, husked and bruised, half a drachm;
——— boiling water, as much as will yield a filtered infusion of six ounces:
Digest for an hour, and filter, when cold.

This is a well contrived purgative infusion, the aromatic correcting the drastic effects of the senna. But the quantity ordered to be prepared at one time by the London college is much too large, for an ounce or two is a sufficient dose. It is of advantage that it should be used fresh prepared, as it is apt to spoil very quickly.

Tartarised Infusion of Senna. (Infusum Sennæ Tartarisatum. L.)

Take of senna, one ounce and a half;
——— coriander seeds, bruised, half an ounce;
——— crystals of tartar, two drachms;
——— distilled water, one pint:
Dissolve the crystals of tartar by boiling in the water; then pour the liquor, as yet boiling, on the senna and seeds. Macerate for an hour in a covered vessel, and strain when cold.

The addition of the supertartrate of potash renders the taste of the senna less unpleasant, and also promotes its action. The quantity to take as a purge is from half an ounce to an ounce early in the morning.

Infusion of Senna with Tamarinds. (Infusum Sennæ cum Tamarindis. D.)

Add to the infusion of senna, before it be strained, an ounce of tamarinds; then strain.

This forms a mild and useful purge, excellently suited for delicate stomachs and inflammatory diseases. The taste of the senna is well covered by the aromatic sugar, and by the acidity of the tamarinds. An ounce is a convenient purge.

COMPOUND TINCTURE OF SENNA, COMMONLY CALLED ELIXIR OF HEALTH. Tinctura Sennæ Composita, (vulgò Elixir Salutis. E.)

Take of senna leaves, two ounces;
——— jalap root, bruised, one ounce;
——— coriander seeds, bruised, half an ounce;
——— diluted alcohol, three pounds and a half:
Digest for seven days, and to the liquor, filtered through paper, add
Double refined sugar, four ounces.

COMPOUND POWDER OF SENNA. (Pulvis Sennæ Compositus. L.)

Take of senna,
——— crystals of tartar, of each two ounces;
——— scammony, half an ounce;
——— ginger, two drachms:
Triturate the scammony by itself, reduce the rest together into a powder, and then mix them all.

This powder is given as a cathartic, in the dose of two scruples, or a drachm. The scammony is used as a stimulus to the senna; the quantity of the latter necessary for a dose, when not assisted by some more powerful material, being too bulky to be conveniently taken in this form. The ginger is added to make it sit easier on the stomach, and gripe less.

EXTRACT OF SENNA. (Extractum Sennæ. L.)

Take of senna, one pound;
——— distilled water, one gallon:
Boil the senna in the distilled water, adding, after its decoction, a little rectified spirit of wine. Evaporate the strained liquor to a proper thickness. The dose is ten grains to half a drachm.

ELECTUARY OF SENNA, COMMONLY CALLED LENITIVE ELECTUARY. (Electuarium Cassiæ Sennæ, olim Electuarium Lenitivum. E.)

Take of senna, eight ounces;
——— coriander seeds, four ounces;

Take of liquorice root, bruised, three ounces;
——— figs,
——— pulp of prunes, each one pound;
——— pulp of tamarinds, half a pound;
——— double refined sugar, two pounds and a half.

ELECTUARY OF SENNA. (Electuarium Sennæ. L.)

Take of senna, eight ounces;
——— coriander seeds, four ounces;
——— liquorice, three ounces;
——— figs, one pound;
——— pulp of tamarinds,
——— pulp of cassia,
——— pulp of prunes, each half a pound;
——— double refined sugar, two pounds a half:
Powder the senna with the coriander seeds, and sift out ten ounces of the mixed powder; boil the remainder with the figs and liquorice, in four pounds of water to one half; express and strain the liquor, which is then to be evaporated to the weight of about a pound and a half; dissolve the sugar in it; add this syrup by degrees to the pulps; and, lastly, mix in the powder.

Dub.

Take of senna leaves, in very fine powder, four ounces;
——— pulp of French prunes, one pound;
——— pulp of tamarinds, two ounces;
——— molasses, a pint and a half;
——— essential oil of caraway, two drachms:
Boil the pulps in the syrup to the thickness of honey; then add the powder, and when the mixture cools, the oil; lastly, mix the whole intimately.

This electuary is a very convenient laxative, and has long been in common use among practitioners. Taken to the size of a nutmeg, or more, as occasion may require, it is an excellent laxative for loosening the belly in costive habits. The formula of the Dublin college is much more simple and elegant than the others.

PRESCRIPTIONS.

℞. 1. Take of the electuary of senna - - - ounce 1,
——— jalap, in powder,
——— ginger, in powder, equal quantities, drachm 1,
——— syrup of roses, as much as is sufficient:

Make into an electuary, take the size of a nutmeg every night to keep the body open, or repeat that quantity every two hours to obtain a relief.

℞. 2. Take of the electuary of senna - - ounce 1,
——— vitriolated kali, in powder - drachm 1:
The dose is the size of a nutmeg at bed-time, as often as the body is bound.

℞. 3. Take of the electuary of senna,
——— jalap, in powder,
——— crystals of tartar, equal parts, drachms 2,
——— syrup of buckthorn, as much as is sufficient:
Make into an electuary, of which take two drachms in the morning as a purge. To be given in costive habits, and in cases of dropsy.

℞. 4. Take of the electuary of senna - - ounce 1½,
——— washed flowers of sulphur - drachms 4,
——— vitriolated kali, in powder - drachm 1,
——— syrup of roses, as much as is sufficient:
Make into an electuary, of which take the size of a nutmeg going to bed, as may be required. This is an excellent remedy in persons who have the piles, or are subject to their return.

℞. 5. Take of senna leaves - - drachms 2,
——— tamarind fruit - drachms 3,
——— rhubarb, broken drachm 1½,
——— water - - - - ounces 7:
Boil for a quarter of an hour. Strain, and add half an ounce of syrup of roses. Give two table-spoonfuls early in the morning, and repeat a table-spoonful every half-hour until the bowels are relieved. This is a mild and agreeable purge.

℞. 6. Take of the simple infusion of senna, ounces 3,
——— tartarised antimony - - grain 1:
Make into a draught, to be taken directly. This forms a certain, brisk, and agreeable purge.

℞. 7. Take of the simple infusion of senna, ounces 3,
——— vitriolated natron - - - drachms 4,
——— spirit of pimento - - - drachms 2:
Make into a draught, to be taken in the morning early. A very excellent purge for costive habits and inflammatory cases.

PURGING CASSIA.

CASSIA FISTULA.

Class X. Decandria. *Order* I. Monogynia.
Essent. Gen. Char. The same as the preceding.
Spec. Char. *Leaves* ovate-accuminate.

DESCRIPTION.

This tree often rises forty feet in height. The leaves are pinnated, composed of four to six pairs of pinnæ, which are ovate, pointed, undulated, standing upon short footstalks. Calyx composed of five leaves. The corolla is composed of five undulated petals, and of a yellow colour. The three lower stamina are very long, and curl inwards. The others have no filaments, and are rostrate, that is, open like the beak of a bird. The fruit is cylindrical and pendulous, from one to two feet in length, at first soft and green, afterwards brown, and lastly black, divided into numerous cells, containing each a hard, round, compressed seed, surrounded with a black pulpy matter.

HISTORY.

This tree is indigenous in India and Ægypt, and is cultivated in Jamaica. It rises to about thirty feet high, and has long flower-spikes, with yellow papilionaceous blossoms.

Its fruit is a cylindrical pod, scarcely an inch in diameter, a foot or more in length: the outside is a hard, brown bark, the inside is divided by thin transverse woody plates, covered with a soft black pulp, of a sweetish taste, with some degree of acrimony. There are two sorts of this drug in the shops; one brought from the East Indies, the other from the West (Cassia Javanica?). The canes or pods of the latter are generally large, rough, thick-rinded, and the pulp nauseous; those of the former are less, smoother, the pulp blacker, and of a sweeter taste: this sort is preferred to the other. Such pods should be chosen as are weighty, new, and do not make a rattling noise, from the seeds being loose within them, when shaken. The pulp should be of a bright shining black colour, and have a sweet taste, neither harsh, which happens from the fruit being gathered before it has grown fully ripe; nor sourish, which it is apt to become upon keeping; nor at all mouldy, which is frequently the case from its being kept in damp cellars, or moistened in order to increase its weight. Greatest part of the pulp dissolves both in water and in alcohol, and may be extracted from the pod by either. The shops boil the bruised pod in water, and afterwards evaporate the solution to a due consistence.

MEDICAL VIRTUE.

The pulp of cassia, from its saccharine and extractive constituents, is a gentle laxative medicine, and is frequently given, in a dose of some drachms, in costive habits. Some direct a dose of two ounces, or more, as a cathartic, in inflammatory cases, where the more acrid purgatives are improper; but in these large quantities it generally excites nausea, produces flatulence, and sometimes gripings of the bowels, especially if the cassia be not of a very good kind: these effects may be prevented by the addition of aromatics, and by exhibiting it in a liquid form.

PREPARATIONS.

Electuary of Cassia. (Electuarium Cassiæ Fistulæ. E.)

Take of pulp of cassia fistularis, four parts;
——— pulp of tamarinds,

Take of manna, each one part;
——— syrup of pale roses, four parts:
Having beat the manna in a mortar, dissolve it with a gentle heat in the syrup; then add the pulps, and evaporate with a regularly continued heat to a proper consistence.

Electuary of Cassia. (Electuarium Cassiæ. L. D.)

Take of the fresh extracted pulp of cassia, half a pound;
——— manna, two ounces;
——— pulp of tamarinds, one ounce;
——— (syrup of roses, half a pound, L.)
——— (syrup of orange-peel, half a pound, D.)
Boil the manna, and dissolve it over a slow fire in the syrup; then add the pulps; and, with a continued heat, evaporate the whole to the proper thickness of an electuary.

These compositions are very convenient officinals, to serve as a basis for purgative electuaries, and other similar purposes. The tamarinds give them a pleasant acidity, and do not, as might be expected, dispose them to ferment. After standing for four months, the composition has been found no sourer than when first made. This electuary is usefully taken by itself, to the quantity of two or three drachms occasionally, for gently loosening the belly in costive habits.

OFFICINAL GUAIACUM.

GUAIACUM OFFICINALE.

Class X. Decandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* five-cleft, unequal: *Petals* five, inserted on the calyx: *Capsule* angular, three- or five-celled.

Spec. Char. *Leaves* in two sets from one peduncle: *Pinnæ* obtuse.

DESCRIPTION.

The guaiacum tree grows to forty feet in height, and in circumference is four or five, sending forth several branches. The bark of the trunk is a dark gray, of the branches an uniform ash colour. The leaves are pinnated, consisting of four to six pairs of oval pinnæ, with very short footstalks. The flowers grow in clusters, or umbels, upon long peduncles, which spring from the divisions of the smaller branches.

HISTORY.

This tree is a native of the West Indies, and grows to a large size. The wood is heavier than water, very hard, resinous, and of a greenish black colour. Its taste is bitterish, and when kindled it gives out a pleasant smell. It is brought either in pieces, which are sometimes covered with a pale yellow alburnum, or already rasped, when by division its colour appears greenish brown, or yellow. The bark is thin, of an ash gray, or blackish colour, and apparently composed of several laminæ. It is less resinous than the wood. Neumann got from 7680 parts of the wood 1680 alcoholic, and 280 watery extract; and inversely, 740 watery, and 960 alcoholic. From 3840 of the bark he got 560 alcoholic, and 320 watery, and inversely, 620 watery, and 240 alcoholic. The resin exudes spontaneously in tears, but is principally obtained by sawing the wood into billets about three feet long, which are then bored with an auger longitudinally. One end of these is laid upon a fire, so that a calabash may receive the melted resin, which runs through the hole as the wood burns. It may be also obtained by boiling the chips or sawings of the wood in water and muriate of soda. The resin swims at the top, and may be skimmed off.

Guaiacum has a brownish yellow colour externally; when held against the light is transparent, breaks with an uniform smooth shining fracture, of a blueish green colour, is pulverizable, and the powder has a white colour, gradually becoming blueish green, is fusible in a moderate heat, but not softened by the heat of the fingers, without proper smell or taste, but when thrown on hot coals diffusing an agreeable odour, and when swallowed in a state of minute division, causing an insufferable burning and prickling in the throat. Its specific gravity is 1·23. Neumann got from 480 parts, 400 alcoholic, and only 10 watery extract; and inversely, 80 watery, and 280 alcoholic. Mr. Brande has more lately investigated this substance with much care. Digested with water, about one-tenth of it is dissolved, the water acquiring a sweetish taste and greenish brown colour. The liquid, when evaporated, leaves a brown substance, soluble in hot water and alcohol, but scarcely in sulphuric ether, and precipitating the muriates of alumina and tin. Alcohol readily forms with guaiacum a deep brown-coloured solution, rendered milky by water, and precipitated pale green by the muriatic and sulphuric acids, brown

by the nitric, and pale blue by the oxymuriatic, but not by the acetic acid or alkalies. The solution in ether exhibits nearly the same properties. Guaiacum is soluble in about 15 parts of solution of potass, and in 38 of ammonia; and the solutions are precipitated by the nitric, muriatic, and diluted sulphuric acids. Sulphuric acid dissolves it, and nitric acid converts it into oxalic acid. On being burnt, it leaves a large proportion of charcoal. Dr. Wollaston has discovered a curious property of guaiacum. By exposure to air and light, it acquires a green colour. This effect is produced in the greatest degree by the most refrangible rays. In the least refrangible rays it is disoxidized, and the yellow colour is restored. The same effect is produced by hot metal. According to this analysis, it differs from the resins in the changes of colour produced on it by air and light, and the action of the acids, in not forming tannin when treated with nitric acid, and in the large proportion of charcoal it affords when burnt. It is sometimes adulterated with colophony or common resin; but the fraud is easily detected, by the smell of turpentine which it emits when thrown on live coals.

MEDICAL USE.

Taken internally guaiacum commonly excites a sense of warmth in the stomach, a dryness of the mouth, with thirst. It increases the heat of the body, and quickens the circulation. If the patient be kept warm, it produces diaphoresis; if exposed freely to the air, an increased flow of urine. In large doses it is purgative.

Guaiacum is a useful remedy,

1. In rheumatism and gout.
2. In certain venereal symptoms; as in foul indolent ulcers, and a thickened state of the ligaments or periosteum, remaining after the body is reduced by a mercurial course. Guaiacum will also suspend the progress of some of the secondary symptoms; but it is totally incapable of eradicating the disease.
3. In cutaneous diseases.
4. In ozæna, and scrofulous affections of the membranes and ligaments.

The wood is always exhibited in decoction. From the resinous nature of the active constituent of this substance this cannot be a very active preparation, as the menstruum is totally incapable of dissolving, though it may suspend a little of the resin.

The decoction of an ounce may be drunk in cupfuls in the course of a day.

The resin may be exhibited,

1. In substance, either made into pills, or suspended in water in the form of an emulsion. In this way from 10 to 30 grains of the resin may be taken in the day.
2. In solution; in alcohol. About half an ounce of the tincture, with three ounces of water, is a sudorific dose for an adult, if he attend to keeping himself warm.
3. Combined with an alkali.

PREPARATIONS.

Tincture of Guaiacum. (Tinctura Guaiaci Officinalis. E.)

Take of gum guaiacum, in powder, one pound;
——— alcohol, two pounds and a half:
Digest for ten days, and strain through paper.

Tincture of Guaiacum. (Tinctura Guaiaci. D.)

Take of guaiacum, four ounces;
——— rectified spirit of wine, two pints:
Digest for seven days, and filter.

What is called gum guaiacum is in fact a resin, and perfectly soluble in alcohol. This solution is a powerful stimulating sudorific, and may be given in doses of about half an ounce in rheumatic and arthritic cases. It was once supposed to be a specific against the gout.

Tincture of Guaiacum. (Tinctura Guaiaci. L.)

Take of guaiacum, in powder, four ounces;
——— aromatic spirit of ammonia, a pint and a half:
Digest for three days, and filter.

Ammoniated Tincture of Guaiacum. (Tinctura Guaiaci Ammoniata. E. D.)

Take of resin of guaiacum, in powder, four ounces;
——— ammoniated alcohol, one pound and a half (one pint and a half, D.):
Digest for seven days, and filter through paper.

These are very elegant and efficacious tinctures; the ammoniated spirit readily dissolving the resin, and at the same time promoting its medicinal virtue. In rheumatic cases, a tea- or

even table-spoonful, taken every morning and evening, in any convenient vehicle, particularly in milk, has proved of singular service.

COMPOUND DECOCTION OF GUAIACUM, COMMONLY CALLED DECOCTION OF THE WOODS. (Decoctum Guaiaci Compositum, vulgo Decoctum Lignorum. E.)

Take of guaiacum raspings, three ounces;
——— raisins, stoned, two ounces;
——— sassafras root, sliced,
——— liquorice root, bruised, each one ounce;
——— water, ten pounds:

Boil the guaiacum and raisins with the water, over a gentle fire, to the consumption of one half, adding, towards the end, the sassafras and liquorice, and strain the decoction, without expression.

This decoction is of use in some rheumatic and cutaneous affections. It may be taken by itself, to the quantity of a quarter of a pint, twice or thrice a day, or used as an assistant in a course of mercurial or antimonial alteratives; the patient in either case keeping warm, in order to promote the operation of the medicine.

COMPOUND LIME WATER. (Aqua Calcis Composita. D)

Take of guaiacum wood, in shavings, half a pound;
——— liquorice root, sliced and bruised, an ounce;
——— sassafras bark, bruised, half an ounce;
——— coriander seeds, three drachms;
——— lime water, six pints:

Macerate, without heat, for two days, and filter.

This, though an infusion, may be considered as an improvement of the compound decoction of guaiacum, as the lime water cannot fail to be decomposed during the preparation.

PRESCRIPTIONS.

℞. 1. Take of guaiacum (gum resin), in powder, scruple 1,
——— conserve of hips, as much as is sufficient:
Make into a bolus, to be taken twice a day, for rheumatism.

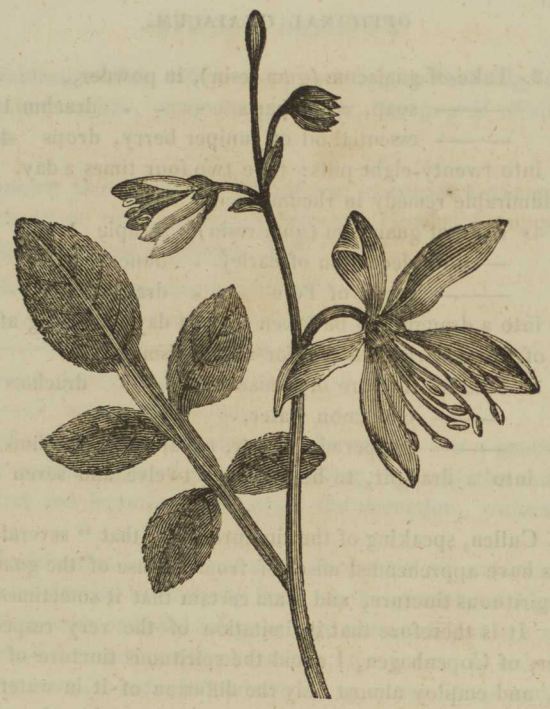
℞. 2. Take of guaiacum (gum resin),
——— scammony, equal parts, grains 15,
——— syrup of ginger, as much as is sufficient:
Make into a bolus, to be taken early in the morning in rheumatism.

℞. 3. Take of guaiacum (gum resin), in powder,
——— soap, equal parts - - - drachm 1,
——— essential oil of juniper berry, drops 4:
Make into twenty-eight pills: take two four times a day. This is an admirable remedy in rheumatism.

℞. 4. Take of guaiacum (gum resin), scruple 1,
——— decoction of barley - ounce 1½,
——— syrup of Tolu - - drachm 1:
Make into a draught, to be taken twice a day, drinking after it a cup of warm barley water: for rheumatism.

℞. 5. Take of tincture of guaiacum - - drachms 3,
——— cinnamon water,
——— peppermint water, equal parts, drachms 6:
Make into a draught, to be taken at twelve and seven every day.

Dr. Cullen, speaking of the tincture, says, that "several physicians have apprehended mischief from the use of the guaiacum in a spirituous tincture, and I am certain that it sometimes happens. It is therefore that in imitation of the very respectable Berger, of Copenhagen, I avoid the spirituous tincture of guaiacum, and employ almost only the diffusion of it in water. In preparing this, having first with an equal part of hard sugar reduced the guaiacum to a fine powder, I apply some portion of the yolk of egg, or of a mucilage of gum Arabic, and rubbing these together very carefully, I form an emulsion with water, or watery liquors, as may be thought proper. This preparation I give over night in such a quantity as may open the belly once next day, which will happen to different persons from doses containing fifteen to thirty grains of the guaiacum." M. M. 199. Berger's formula is the following: ℞. G. guaiaci ʒ ss G. Arabici ʒ ij. Bene trita solv. in aquæ hyssopi vel alius distill. ʒ ix. Add. sacchari ʒ ss m. d. s. solutio, cujus duo cochlearia majora mane et vesperi capiantur, superbibito libra una decocti hordei vel avenæ. Vet. Acad. Handl. vol. i. p. 74. Theden recommends the guaiacum made into pills with soap of almonds, which is still more convenient. (Neue Bemerk. u Ersahr, a. d. Wundarzneyk. und Arz. p. 2. 204.)



WHITE FRAXINELLA,
OR
BASTARD DITTANY.
DICTAMNUS ALBUS.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-leaved: *Petals* five, spreading: *Filaments* covered with glandular spots.

SPEC. CHAR. *Leaves* pinnate: *Stem* simple.

DESCRIPTION.

THIS plant rises a foot and a half. The leaves are pinnated, and large: pinnæ oval, veined, pointed, slightly serrated, disposed in pairs, terminated by an odd one, which is the biggest. Flowers are white, large, terminate the stem, and stand upon long peduncles. Fruit five united capsules, each of which contains two oval seeds.

HISTORY.

This plant is commonly called Fraxinella, and is native of France, Germany, and Italy. It emits a fragrant bituminous odour, which seems to be the essential oil of the herb, secreted by numerous small glands, with which the peduncles and filaments are abundantly furnished. These odorous effluvia are so very inflammable, that on the application of flame they take fire, especially on the evening of a hot dry day.

MEDICAL VIRTUES.

The root, which is the part directed for medicinal use, when fresh, has a moderately strong, not disagreeable smell, but as met with in the shops it has scarcely any. To the taste it discovers a pretty strong and very durable bitterness, which is taken up both by watery and spirituous menstrua, and, on inspissating the filtered tinctures, remains entire in the extracts: the aqueous extract is in much larger quantity than the spirituous, and proportionably weaker in taste.

Formerly this root was used as a stomachic, tonic, and alexipharmic, and was supposed to be a medicine of much efficacy in removing uterine obstructions and destroying worms; but its medicinal powers became so little regarded by modern physicians, that it had fallen almost entirely into disuse, till baron Stoerck brought it into notice by publishing several cases of its success, viz. in tertian intermittents, worms (lumbrici), and menstrual suppressions. In all these cases he employed the powdered root to the extent of a scruple twice a day. He also made use of a tincture, prepared of two ounces of the fresh root digested in fourteen ounces of spirit of wine; of this twenty to fifty drops, two or three times a day, were successfully prescribed in epilepsies, &c.: and when joined with steel, this root, we are told, was of great service to chlorotic patients.

The dictamnus undoubtedly is a medicine of considerable power; but, notwithstanding the account of it given by Stoerck, who seems to have paid little attention to its *modus operandi*, we may still say with Haller, "Nondum autem vires pro dignitate exploratus est."

COMMON RUE.

RUTA GRAVEOLENS.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-parted: *Petals* concave: *Receptacle* surrounded with ten honey-bearing points: *Capsule* lobed.

SPEC. CHAR. *Leaves* twice compound: *Lateral flowers* quadrifid.

DESCRIPTION.

THIS plant rises a foot in height. The leaves consist of double sets of irregular pinnæ, are blunt at the ends, and of a glaucous colour. Flowers numerous, of a pale yellow. Petals five, dentated, or fringed at the edges.

HISTORY.

This shrub is native of the south of Europe, flowers from June to September, and is common in the gardens.

MEDICAL VIRTUE.

It is supposed to be antipestilential, and hence our benches of judges have their noses regaled with this most fœtid plant: this arose from the ancients believing that mithridate, in which

rue has a principal share, repels all poisons. Hence this adage,

"Salvia cum ruta faciunt tibi pocula tuta."

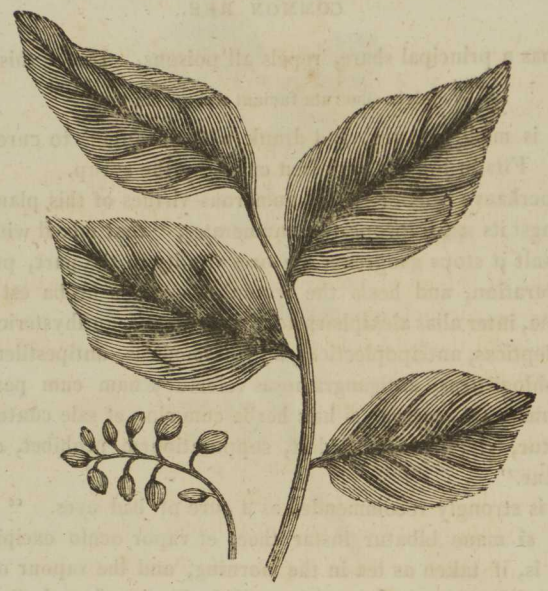
It is made into tea, and drank with advantage to cure hysterics. Fits in infants are often cured by the syrup.

Boerhaave celebrates the numerous virtues of this plant, and amongst its many properties enumerates, "that mixed with wine and salt it stops gangrene, restores vitality to the part, prevents suppuration, and heals the wound."—"Hæc herba est laudatissima, inter alias alexipharmacas, antidoxicas, antihystericas, antiepilepticas, antiapoplecticas, antispasmodicas, antipestilentiales, antiphlogisticas, antigangrænosas refertur; nam cum pars jam gangræna est mortua, si hæc herba cum vino et sale contusa applicetur, vitam iterum reddit, suppurationem prohibet, et pars sanatur."

It is strongly recommended as a cure of bad eyes. "Visum acuit si mane bibatur instar thée, et vapor oculo excipiatur." That is, if taken as tea in the morning, and the vapour of it be received by the eyes, the vision will be improved, and all disease of that organ removed.

"Nobilis est ruta, quia lumina reddit acuta."

And the author of this work has several times, with himself and others, cured the most violent inflammations of the eyes by the vapour of boiling water alone: so much for the probability of this practice with rue, as reported by the great Boerhaave!



BALSAM OF TOLU TREE.

TOLUIFERA BALSAMUM.

Class X. Decandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* five-toothed, campanulate: *Petals* five, the lowest largest, obcordate: *Style* none.

DESCRIPTION.

This tree grows to a great height. The leaves are oval or ovate, and stand upon short footstalks. The fruit is a round berry.

HISTORY.

This tree grows in Spanish America; the balsam flows from incisions made in its bark during the hot season, and is brought to us in little gourd shells. It is of a yellowish brown colour, inclining to red; in consistence thick and tenacious: by age it grows hard and brittle. The smell of this balsam is extremely fragrant, somewhat resembling that of lemons; its taste warm and sweetish. Lewis says that he has sometimes procured benzoic acid from it. It yields very little volatile oil, although it impregnates the distilled water strongly with its flavour. By dissolving a proper quantity of sugar in this water, a more elegant syrup is obtained than that prepared in the common way with a decoction of the balsam. In its medical virtues it agrees with the other balsams.

PREPARATIONS.

Tincture of the Balsam of Tolu. (Tinctura Toluiferi Balsami, olim Tinctura Tolutana. E. Tinctura Balsami Tolutani. L. D.)

Take of balsam of Tolu, an ounce and a half (one ounce, D.)
——— alcohol, one pound (one pint, L. D.):
Digest until the balsam be dissolved; and then strain the tincture through paper.

This solution of balsam of Tolu possesses all the virtues of the balsam itself. It may be taken internally, with the several intentions for which that balsam is proper, to the quantity of a tea-spoonful or two, in any convenient vehicle. Mixed with simple syrup, it forms an elegant balsamic syrup.

Syrup of Tolu. (Syrupus Tolutanus. L.)

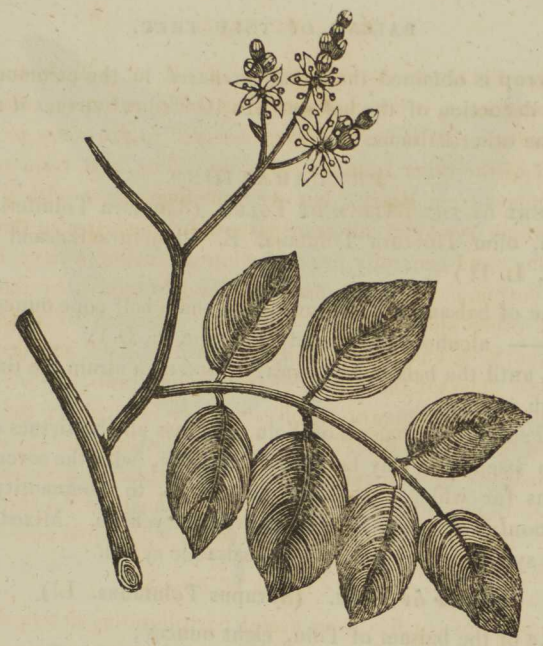
Take of the balsam of Tolu, eight ounces;
——— distilled water, three pints:
Boil for two hours. Mix double refined sugar with the liquor, strained after it is cold, that it may be made a syrup.

The intention of the contrivers of the two foregoing processes seems to have been somewhat different. In the latter, which is certainly the most elegant, the benzoic acid of the balsam alone is contained; the other syrup contains the whole substance of the balsam in larger quantity. They are both moderately impregnated with the agreeable flavour of the balsam.

The syrup of Tolu usually enters into the composition of other medicines, except when given in the form of lozenges for a cold, which may be procured of almost any chemist, and is certainly very serviceable in appeasing the irritation productive of severe coughing. The following forms an agreeable and very useful prescription in almost every cough, and merits justly the title of a *placebo*.

PRESCRIPTION.

℞. 1. Take of spermaceti dissolved in the white of egg, scr. 1,
——— syrup of Tolu - - - - - - - - dr. 2,
——— cinnamon water - - - - - - - dr. 3,
——— milk of almonds - - - - - - - dr. 11:
Make into a draught, to be taken four times a day.



COPAIVA TREE.

COPAIFERA OFFICINALIS.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* none: *Petals* four: *Legumen* ovate: *Seed* one, with a berried arillus.

DESCRIPTION.

THIS tree grows to a great height. The leaves are pinnated, large, consisting of several pair of pinnæ and an odd one, on short footstalks. The flowers are white, and inconspicuous. Petals four, acute, spreading.

HISTORY.

The tree which produces this resin is a native of the Spanish West India islands, and of some parts of South America. It grows to a large size, and the resinous juice flows in considerable quantities from incisions made in the trunk.

The juice is clear and transparent, of a whitish or pale yellowish colour, an agreeable smell, and a bitterish pungent taste.

It is usually about the consistence of oil, or a little thicker; when long kept, it becomes nearly as thick as honey, retaining its clearness; but it has not been observed to grow dry or solid, as most of the other resinous juices do. The best resin of copaiva comes from Brazil; but we sometimes meet with a thick sort, which is not at all transparent, or much less so than the foregoing, and generally has a portion of turbid watery liquor at the bottom. This is probably either adulterated by the mixture of other substances, or has been extracted by decoction from the bark and branches of the tree: its smell and taste are much less pleasant than those of the genuine resin.

Pure resin of copaiva dissolves entirely in alcohol: the solution has a very fragrant smell. Distilled with water it yields a large quantity of a limpid essential oil, but no benzoic acid: it is therefore not a balsam, but a combination of resin and volatile oil. Neumann says that it effervesces with liquid ammonia.

MEDICAL VIRTUES.

The resin of copaiva is an useful corroborating detergent medicine, but in some degree irritating. It strengthens the nervous system, tends to loosen the belly; in large doses proves purgative, promotes urine, and cleans and heals ulcerations in the urinary passages, which it is supposed to perform more effectually than any of the other resinous fluids. Fuller observes that it gives the urine an intensely bitter taste, but not a violet smell, as the turpentines do.

This resin has been principally celebrated in gleets, and the fluor albus, and externally as a vulnerary.

The dose of this medicine rarely exceeds twenty or thirty drops, though some authors direct sixty, or upwards. It may be conveniently taken in the form of an emulsion, into which it may be reduced by triturating it with almonds, with a thick mucilage of gum arabic, or with the yolk of eggs, till they are well incorporated, and then gradually adding a proper quantity of water.

BENJAMIN OR BENZOIN TREE.

STYRAX BENZOIN.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. Same as the last.

SPEC. CHAR. *Leaves* oblong, acuminate, beneath tomentose: *Racemes* compound, length of the leaves.

DESCRIPTION.

THIS tree grows to a great height. The leaves are oblong, entire, veined, tapering to a sharp point; the upper surface smooth, beneath downy, standing alternately upon short foot-stalks. The flowers are placed on common peduncles arising from the axillæ of each leaf. The corolla is bell-shaped, and the border cut into five segments, but closed, which gives the appearance of buds.

HISTORY.

This species of storax grows in Sumatra, and, like the former, also furnishes a balsam on being wounded, which is brought from

the East Indies, in large masses, composed of white and light brown pieces, with yellowish specks, breaking very easily betwixt the hands; that which is whitest, and freest from impurities, is most esteemed.

MEDICAL USE.

In its properties it differs from storax only in containing a larger proportion of benzoic acid. Neumann found that it was totally soluble in alcohol, forming a blood-red tincture, and that water extracted no gummy matter, but a notable proportion of benzoic acid. By sublimation he got two ounces of impure acid from sixteen of benzoin. Lime and the alkaline carbonates dissolve the acid without attacking the resin, and are accordingly employed in the processes of Scheele, Göttling, and Gren, for obtaining the benzoic acid. I find that the solution of potass dissolves benzoin very rapidly, forming a dark-coloured solution, mixed with fine crystals of benzoat of potass. This alkaline solution is not decomposed by water, but forms with acids a rose-coloured coagulum, easily soluble in excess of acid. Boiling nitrous acid also attacks benzoin with great violence, and dissolves it entirely; the solution becomes turbid, and lets fall a copious precipitate on cooling, which, according to Mr. Brandé, is benzoic acid. It is decomposed by water, and by alkaline solutions.

PREPARATIONS.

BENZOIC ACID. (Acidum Benzoicum. E.)

Take of benzoin, twenty-four ounces;
——— carbonate of soda, eight ounces;
——— water, sixteen pounds:

Triturate the benzoin with the carbonate, then boil in the water for half an hour, with constant agitation, and strain. Repeat the decoction, with other six pounds of water, and strain. Mix these decoctions, and evaporate until two pounds remain. Filter anew, and drop into the fluid, as long as it produces any precipitation, diluted sulphuric acid. Dissolve the precipitated benzoic acid in boiling water, strain the boiling solution through linen, and set it aside to crystallize. Wash the crystals with cold water, dry and preserve them.

ACID OF BENZOIN. (Acidum Benzoes. D.)

Take of benzoin, any quantity;

Liquefy it in a retort with a wide throat, having a receiver fitted

to it, but not luted; and sublime. Remove the sublimed matter occasionally from the neck of the retort, lest it accumulate in too great a quantity. If it be soiled with oil, separate the oil by pressing it, folded up in blotting paper, and repeat the sublimation.

Flowers of Benzoin. (Flores Benzoes. L.)

Take of benzoin, in powder, one pound:
Put it into an earthen pot, placed in sand, and, with a slow fire, sublime the flowers into a paper cone fitted to the pot.

If the flowers be of a yellow colour, mix them with white clay, and sublime them a second time.

The distinguishing character of balsams is their containing benzoic acid, which may be separated from the resin, their other principal constituent, either by sublimation, or by combining it with a salifiable base. The London and Dublin colleges direct it to be done in the former way. But, even with the greatest care, it is almost impossible to manage the heat so as not to decompose part of the resin, and thus give rise to the formation of an empyreumatic oil, which contaminates the product. Nor can it be freed completely from the empyreumatic oil by bibulous paper, as prescribed by the Dublin college, and still less by the second sublimation with clay, directed by that of London.

The other method of separating benzoic acid from resin was first practised by Scheele, who employed lime water; Göttling afterwards used carbonate of potass; and, lastly, Gren used carbonate of soda, which has been adopted by the Berlin college, and now by that of Edinburgh. Mr. Brandé prefers Scheele's process, as the lime dissolves less of the resin of the benzoin than the alkalies do. In experiments, which he made for the purpose of ascertaining the comparative value of the different processes, he obtained from one pound of benzoin,

	oz.	dr.	scr.	gr.
By sublimation	2	0	0	0
— Scheele's process	1	6	2	19
— Gren's and Göttling's process	1	5	1	10
— boiling benzoin in water	1	0	0	10

As the crystallized acid, on account of its lightness and elasticity, is not easily reduced to powder, for most purposes it will be more convenient to keep it in the state of a precipitate.

It may also be extracted from storax, and all the other balsams, particularly those of Tolu or Peru; and from the urine of children, and of herbivorous animals.

The benzoic acid has an agreeable taste, and a fragrant smell, especially when heated. It is soluble in alcohol, and in boiling water, but very sparingly in cold water, although it may be suspended in it, by means of sugar, so as to form an elegant balsamic syrup. The dose is ten grains to half a drachm.

Compound Tincture of Benzoin. (Tinctura Benzoes Composita, vulgò Balsamum Traumaticum. E.)

Take of benzoin, in powder, three ounces;
——— balsam of Tolu, one ounce;
——— socotrine aloes, in powder, half an ounce;
——— alcohol, two pounds:
Digest with a gentle heat for seven days, and strain.

Compound Tincture of Benzoin. (Tinctura Benzoes Composita. L. D.)

Take of benzoin, three ounces;
——— purified storax, two ounces;
——— balsam of Tolu, one ounce;
——— socotrine aloes, half an ounce;
——— rectified spirit of wine, two pints:
Digest for seven days, and filter.

Both preparations may be considered as elegant simplifications of some very complicated compositions, which were celebrated under different names; such as Baume de Commandeur, Wade's balsam, Friar's balsam, Jesuit's drops, &c. These, in general, consisted of a confused farrago of discordant substances. The dose is a tea-spoonful in some cold water four times a day, in consumptions and spitting of blood. It is useful also when applied on lint to recent wounds, and serves the purpose of a scab, but must not be soon removed. Poured on sugar it removes spitting of blood immediately.

PRESCRIPTION.

℞. 1. Take of compound tincture of benzoin, drops 40,
——— purified honey - - - - drachms 1,
——— rose water - - - - - ounce 1½,
——— tincture of opium - - - - drops 3:
Make into a draught, to be taken four times a day. Excellent in consumptions.

OFFICINAL STORAX.

STYRAX OFFICINALE.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* beneath: *Corolla* funnel-shaped: *Drupe* two-seeded.

SPEC. CHAR. *Leaves* ovate, underneath villous: *Racemes* simple, shorter than the leaf.

DESCRIPTION.

THIS tree rises to twenty feet. The leaves are broad, entire, somewhat pointed, and on the upper surface smooth, on the under surface covered with a white down; these are placed alternate, and stand upon short footstalks. The flowers are large, white, and terminate the branches. The border of the corolla is cut into five segments.

HISTORY.

This tree grows in the Levant, Italy, and France. The storax flows from wounds made in the bark, in countries where the heat is sufficient, for neither in France nor in Italy does it furnish any. It occurs either in small distinct tears, of a whitish or reddish colour, or in large masses composed of tears, or in masses of an uniform texture, and yellowish red or brownish

colour; though sometimes likewise interspersed with a few whitish grains.

The common storax of the shops is in large masses, considerably lighter and less compact than the foregoing: it appears on examination to be composed of a resinous juice, mixed with sawdust.

Storax has an agreeable smell, and an aromatic taste. Neumann got from 480 grains, 360 alcoholic, and 30 of watery extract; and inversely, 120 watery, and 240 alcoholic. In distillation it yielded benzoic acid. It is therefore a balsam, or natural combination of resin with benzoic acid.

PREPARATIONS.

PURIFIED STORAX. (Styrax Purificata. L.)

Dissolve the storax in rectified spirit of wine, and strain the solution; afterwards reduce it to a proper thickness, with a gentle heat.

Dub.

Digest the storax in water, with a low heat, until it gets soft; then express it between iron plates, heated with boiling water; and, lastly, separate it from the water.

Storax is a balsam, or combination of resin and benzoic acid, both of which are soluble in alcohol, and neither of them volatile in the heat necessary for evaporating alcohol. The London process for purifying is expensive, and the Dublin college cannot have altered it without good reason.

PILLS OF OPIUM. (Pilulæ Opii. L.)

Take of hard purified opium, powdered, two drachms;
——— extract of liquorice, one ounce:
Beat them until they are perfectly united.

STORAX PILLS. (Pilulæ e Styrace. D.)

Take of purified storax, three drachms;
——— soft purified opium,
——— saffron, of each one drachm:
Beat them into an uniform mass.

OPIATE OR THEBAIC PILLS. (Pilulæ Opiatæ, olim Pilulæ Thebaicæ. E.)

Take of opium, one part;
——— extract of liquorice, seven parts;
——— Jamaica pepper, two parts:

Soften the opium, and extract separately with diluted alcohol; and, having beat them into a pulp, mix them: then add the pepper reduced to a powder; and, lastly, having beat them well together, form the whole into a mass.

It is unfortunate that these compositions should differ so much in strength, the two former containing two, and the latter only one grain of opium, in ten of the mass. Under the idea that opium is to operate as a sedative, the addition of the pepper is somewhat injudicious. The London title also is improper, as it is naturally employed for pills of opium without any addition. Even the title adopted by the Edinburgh college is ambiguous. That of the Dublin appears to me well contrived, although it does not mention the only active ingredient; as it is often necessary to conceal from our patients that we are giving them opium, which both the name and smell of the storax enable us to do. The dose is four or five grains, to be given at bed-time. This produces often a very comfortable night, and without that disturbance which opium often creates.

PRESCRIPTION.

℞. Take of purified storax - - grains 8,
——— aromatic powder - grains 5,
——— purified opium - - grains 3,
——— syrup of Tolu, as much as is sufficient:
Make into six pills. Take a pill every night. This often produces a less distress of the head and stomach the following morning than opium by itself.

BITTER QUASSIA.

QUASSIA AMARA.

Class X. Decandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* five-leaved: *Petals* five: *Nectary* five-leaved: *Pericarps* five, distant.

Spec. Char. *Flowers* bisexual, in spikes: *Leaves* pinnate, ending in an odd one: *Pinnæ* opposite, sessile, on an articulated winged petiole.

DESCRIPTION.

This tree rises several feet in height. The wood is light and white. The leaves are placed alternately on the branches, and consist of two pairs of opposite pinnæ, with an odd one at the end. The common footstalk is articulated and winged, with a leafy membrane. The flowers are of a bright red colour. The bractes or floral leaves are small, and accompany each peduncle, or flower-stalk. The calyx is small, coloured, and has five teeth. The corolla is composed of five petals. The nectary consists of five small rounded scales. The stamina are conspicuous, as well as the nectary.

HISTORY.

This is the root of a tree growing near to Surinam, in South America; it got its name from a slave who was first known to use it in the cure of fevers. The tree is described by Dr. Bloom in the sixth volume of Linnæus's Amœnitates Academicæ, where we have likewise an account of the use of the root.

This root is about the thickness of a man's arm; its wood is whitish, becoming yellowish by exposure to the air. It has a thin, gray, fissured, brittle bark, which is deemed, in Surinam, more powerful than the wood. Quassia has no sensible odour, but is one of the most intense, durable, pure bitters known. Its infusion, decoction, and tincture, are almost equally bitter and yellowish, and are not blackened by chalybeates. The properties of the extract of quassia have been detailed by Dr. Thomson, under the title of the bitter principle.

MEDICAL USE.

This root is extremely bitter; it has been given in powder from ten grains to half a drachm for a dose, every three, four, or six hours; or one or two ounces of an infusion, made of two drachms of it and a pint of boiling water, have been given as often, in bilious, remitting, and intermitting fevers. In the year 1767, Mr. Farley, of Antigua, sent home an account of three or four cases of bilious and putrid fevers in which the bark would not stay on the stomach, but in which this root produced every good effect that could have been wished; and his account was published in the fifty-eighth volume of the Philosophical Transactions.

I have frequently ordered, with success, both the powder and the infusion of the root, in fevers; and have likewise found it to be a good stomachic bitter in many cases.

SIMARUBA QUASSIA.

QUASSIA SIMARUBA.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. The same as the last.

SPEC. CHAR. *Flowers* monœcious: *Leaves* abruptly pinnate: *Leaflets* alternate, subpetioled: *Flowers* in panicles.

DESCRIPTION.

This tree reaches a considerable height. The leaves are numerous, and stand alternately on the branches. Each leaf is composed of several pinnæ, of an elliptic shape. The flowers are small and yellow, and placed on panicles, which are only branched spikes. Calyx small. Corolla composed of five small petals. Nectary ten hairy scales.

HISTORY.

This tree grows in Guiana and in Jamaica. The simarouba of the shops is the bark of the root of this tree, and not of the quassia amara, as stated by the Dublin college. It is brought to us in pieces some feet long, and some inches broad, folded

lengthwise. It is light, fibrous, very tough; of a pale yellow on the inside; darker coloured, rough, scaly, and warted on the outside; has little smell, and a bitter, not disagreeable taste. It gives out its bitterness both to alcohol and water.

MEDICAL USE.

It has been much celebrated in obstinate diarrhœa, dysentery, anorexia, indigestion, lienteria, and intermittent fevers.

It is given in powder, in doses of half a drachm, or a whole drachm; but it is too bulky, and very difficultly pulverizable. It is best exhibited in decoction. Two drachms of the bark may be boiled in two pounds of water to one, and the decoction drunk in cupfuls in the course of the day.

PRESCRIPTIONS.

℞. 1. Take of the raspings of quassia - drachms 2,
——— orange-peel - - - - drachms 3,
——— lemon-peel - - - - drachms 4,
——— boiling water - - - - pound 1:
Let this remain for four hours in a closed saucepan, then strain off. The dose is three table-spoonfuls at twelve, seven, and bed-time. A very fine stomachic medicine.

℞. 2. Take of the soft extract of quassia - drachm 1,
——— essential oil of peppermint - drop 1:
Make into twelve pills, of which take three, an hour before dinner. Excellent to create digestion in habits injured by hard drinking.

℞. 3. Take of shavings of quassia - drachms 2,
——— boiling water - - - pint 1:
Let this remain in a close vessel until cold, when strain off, and add to the strained liquor,
Compound tincture of cardamom - ounces 2,
Compound spirit of lavender - - drachms 4,
Powder of rhubarb - - - - - scruple 1:
Take three table-spoonfuls an hour before dinner, to create an appetite.

℞. 4. Take of the infusion of quassia (as in the last prescription) - - - - - - - - ounce 1,
——— cinnamon water - - - drachms 4,
——— compound spirit of ammonia, drops 20,
——— prepared oyster-shells - grains 2:
Make into a draught to be taken at twelve and seven every day. This relieves sickness and qualms in pregnancy.

TRAILING ARBUTUS, OR BEAR-BERRY.

ARBUTUS UVA URSI.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-parted: *Corolla* ovate: mouth with a pellucid base: *Berry* five-celled.

DESCRIPTION.

THIS rises to a large shrub. Leaves numerous, oblong, obtuse, narrower towards the base, entire, fleshy, without footstalks, very closely surrounding the upper part of the stalk. Flowers whitish, or flesh-coloured, terminating the stem in clusters. Calyx small and toothed. Corolla round, bellied, at the margin cut into five segments, which become reflexed.

HISTORY.

This is a very small evergreen shrub. The leaves are oval, not toothed, and their under surface is smooth and pale green. It grows wild in the woods, and on sand-hills in Scotland, and

in almost every country in Europe. The green leaves alone, Dr. Bourne says, should be selected and picked from the twigs, and dried by a moderate exposure to heat. The powder, when properly prepared, is of a light brown colour, with a shade of greenish yellow, has nearly the smell of good grass hay as cut from the rick, and to the taste is at first smartly astringent and bitterish; which sensations gradually soften into a liquorice flavour. Digested in alcohol they give out a green tincture, which is rendered turbid by water, and when filtered passes transparent and yellow, while a green resin remains on the filter. They are powerfully astringent, approaching, in the deepness of the colour which they give to red sulphate of iron, more nearly to nut-galls than any substance I have tried. Indeed in some parts of Russia they are used for tanning.

MEDICAL VIRTUE.

The medical effects of this medicine depend entirely on its astringent and tonic powers. It is therefore used in various fluxes arising from debility, menorrhagia, fluor albus, cystirrhœa, diabetes, enuresis, diarrhœa, dysentery, &c. It has been strongly recommended in phthisical complaints by Dr. Bourne, and in diseases of the urinary organs by De Haen, particularly in ulcerations of the kidneys and bladder. It certainly alleviates the dyspeptic symptoms accompanying nephritic complaints. It is commonly given in the form of powder, in doses of from twenty to sixty grains three or four times a day.

The illustrious Haller, speaking of this plant, says, "the infusion is bitter and astringent, the aqueous extract has the smell of honey with the properties of the infusion. The spirituous infusion is likewise bitter. Besides, we extract a green resin which has the odour of wax. The decoction is bitter, and leaves a heat in the throat. By distillation we obtain an acid liquor."

It is this acid liquor which attacks the calculi formed in the human body, reduces them to small pieces, and softens those that cannot be thus split, or broken: of 150 calculi which we submitted to this test, there was not one but was acted upon by this acid liquor.

When taken internally it destroys that glutinous matter which forms with the terrene part calculi, and hence prevents the formation of this dreadful disease. This liquor was injected into the bladders of dogs, and produced with them no inconvenience,

and remained:—Might not the same process be successfully employed with the human subject? We never observed any mischief arising from the use of this plant; we have found it good in all disorders of the kidneys or bladder, and also in the hæmorrhoids and strangury. De Haen gives a drachm of the leaves in powder at a dose two or three times a day. Werlhof has employed it with success in gravel. In two cases of consumption it did not succeed.

In this country the fate of this remedy has been reversed; for it has acquired considerable fame in pulmonary consumption, and sunk in reputation as a specific in calculous disorders. Dr. Withering, speaking of the effects of this plant, says, "Perhaps, upon the whole, we shall find it no better than other vegetable astringents, some of which have long been used by the country people in gravelly complaints, and with very great advantage, though hitherto unnoticed by the regular practitioners."

LOGWOOD.

HÆMATOXYLUM CAMPECHIANUM.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-parted: *Petals* five: *Capsule* lanceolate, one-celled, two-valved: *Valves* navicular.

DESCRIPTION.

THIS rises to a moderate sized tree. Its branches are defended with sharp spines. The leaves are pinnated, composed of four or five pair of pinnæ, heart-shaped, and obliquely veined. The flowers are yellow, small, and numerous.

HISTORY.

This tree was introduced from the Honduras into Jamaica, where it is now very common. The wood is firm, heavy, and of a dark red colour. Its taste is sweet, with a slight degree of astringency. It forms a precipitate with solution of gelatine, very readily soluble in excess of gelatine, and with sulphate of iron it strikes a brighter blue than any other astringent I have tried. It is used principally as a dye-wood, but also with considerable advantage in medicine.

MEDICAL USE.

Its extract is sweet, and slightly astringent; and is therefore useful in obstinate diarrhœas, and in chronic dysentery. Of the extract one to two scruples is given four times a day.

MAHOGANY TREE.

SWIETENIA MAHAGONI.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-cleft: *Petals* five: *Nectary* cylindric, bearing the anthers at its mouth: *Capsule* five-celled, ligneous, dehiscent at the base: *Seed* imbricated, winged.

DESCRIPTION.

THIS is a very large tree, well known as producing the hardest tables, and when polished of exceeding great beauty. Leaves are pinnated, alternate, composed of three, four, or five pinnæ, lance-shaped, acute, on short footstalks. Flowers numerous, small, white.

HISTORY.

This majestic tree grows principally in Jamaica and in Spanish America. Its useful wood is universally known. Its bark is brown, rough, and scaly, on the branches gray and smoother. Its taste is very astringent, and more bitter than that of Peruvian bark. Its smell weak and aromatic.

MEDICAL VIRTUE.

In its action on the living body, it is said to coincide nearly with Peruvian bark, and may be substituted for it in many situations.

YELLOW-FLOWERED RHODODENDRON.

RHODODENDRON CHRYSANTHUS.

Class X. Decandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-parted: *Corolla* funnel-shaped, border cut into five irregular segments: *Stamina* declined: *Capsule* five-celled.

SPEC. CHAR. *Leaves* oblong, above rough, veined, beneath smooth: *Corolla* rotate, irregular.

DESCRIPTION.

THIS shrub rises a foot in height. The leaves are opposite below, above clustered like a rose; of a deep green colour above, and ferruginous beneath. The flowers are in umbels, of a bright yellow colour. The stamina are very distinctly seen in this plant, and curl upwards to the pistil.

HISTORY.

This small shrub grows in the coldest situations, and highest parts of the snow-covered mountains in East Siberia, and especially in Dauria. The leaves are oblong, rigid, reflected at the edges, rough on the upper surface, smooth, and paler on the

lower. When dried, they have no smell, but a rough, astringent, and bitterish taste. They also contain a stimulant narcotic principle; for they increase the heat of the body, excite thirst, and produce diaphoresis, or an increased discharge of the other secretions or excretions; and, in a large dose, inebriation and delirium.

MEDICAL USE.

In decoction it is used in Siberia in rheumatism and gout. About two drachms of the dried shrub are infused in an earthen pot, with about ten ounces of boiling water, keeping it near a boiling heat for a night, and the infusion taken in the morning. Besides its other effects, it is said to produce a sensation of prickling or creeping in the pained parts; but in a few hours the pain and disagreeable symptoms are relieved, and two or three doses generally complete the cure. Liquids are not allowed during its operation, as they are apt to induce vomiting.

SAXIFRAGE.

SAXIFRAGA GRANULATA.

Class X. Decandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Calyx* five-parted: *Corolla* five petals: *Capsule* two-beaked, one-celled, many-seeded.

SPEC. CHAR. *Leaves* cauline, reniform, lobed: *Stem* ramous: *Root* granulated.

DESCRIPTION.

ROOT composed of small bulbs adhering to fine fibres. Stalk rises a foot. Leaves kidney-shaped, toothed. Flowers white, conspicuous.

HISTORY.

Native of England. Flowers in April and May. Found on dry situations.

MEDICAL VIRTUE.

From its little tubercles, it has been supposed to point out a hidden power in this plant to break stones in the kidneys and bladder; but this reputation, probably, is wholly owing to popular superstition.

CLOVE PINK.

DIANTHUS CARYOPHYLLUS.

Class X. Decandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Calyx* cylindrical, one-leafed, at the base four scales: *Petals* five, clawed: *Capsule* cylindric, one-celled.

SPEC. CHAR. *Flowers* single: *Calycine scales* subovate, very short: *Corolla* crenate.

DESCRIPTION.

THIS plant rises from one to two feet in height. Stem slender, jointed. Leaves linear, placed in pairs at the joints. The flowers are of a deep crimson colour.

HISTORY.

This species of dianthus is perennial, and a native of Italy, though now found wild on the walls of old castles in England. By cultivation its varieties have increased to a very great number, and they form one of the greatest ornaments of our gardens. Most of these are termed carnations; but the variety which is officinal surpasses all the others in the richness of its smell. It is also distinguished by being of an uniform deep crimson colour. It is now scarcely, if at all, to be found in Scotland, and instead

of it the crimson carnations are commonly used to give the colour to the syrup, while for its flavour it is indebted to the spice clove. Their only use in pharmacy is to give a pleasant flavour and beautiful colour to an officinal syrup.

PREPARATIONS.

Syrup of Clove July-flower. (Syrupus Dianthi Caryophylli. E.)

Take of clove July-flowers, fresh gathered, and freed from the heels, one pound;
——— double refined sugar, seven pounds;
——— boiling water, four pounds:
Macerate the petals in the water for twelve hours; and dissolve in the filtered infusion the sugar, in powder, by a gentle heat, so as to form a syrup.

Syrup of Clove July-flower. (Syrupus Caryophylli Rubri. L. D.)

Take of fresh clove July-flowers, two pounds;
——— boiling distilled water, six pints:
Macerate for twelve hours in a glass vessel; and in the strained liquor dissolve double refined sugar, so as to form a syrup.

As the beauty of the colour is principally attended to in this syrup, no force should be used in expressing the infusion from the flowers.

Some have substituted for it one easily prepared at seasons when the flowers are not to be procured: an ounce of spice cloves is infused for some days in twelve ounces of white wine, the liquor strained, and, with the addition of twenty ounces of sugar, boiled to the proper consistence of a syrup, to which a little cochineal gives a colour exactly similar to that prepared from the clove July-flower; and its flavour is of the same kind, though not so pleasant. The counterfeit may be readily detected, by adding to a little of the syrup some alkaline salt or ley, which will change the genuine syrup to a green colour; but in the counterfeit it will make no such alteration, only varying the shade of the red.

WOOD-SORREL.

OXALIS ACETOSELLA.

Class X. Decandria. *Order* V. Pentandria.

Essent. Gen. Char. *Calyx* five-leaved: *Petals* adhering by their claws: *Capsule* five-sided, exploding its seeds.

Spec. Char. *Scape* one-flowered: *Leaves* ternate-obcordate: *Root* dentate.

DESCRIPTION.

This plant rises to a small height. The root runs horizontal, scaly, or toothed. The leaves grow three together, each being heart-shaped. The leaf-stalks are about three inches long. The flowers are large and white, or flesh-coloured, and elegantly streaked with red veins.

HISTORY.

This is a small perennial plant, which grows wild in woods and under shady hedges, and flowers in April and May. The

leaves contain a considerable quantity of super-oxalate of potass, and have an extremely pleasant acid taste. They possess the same powers with the vegetable acids in general, and may be given in infusion, or beaten with sugar into a conserve, or boiled with milk to form an acid whey. The super-oxalate of potass is extracted in large quantities from them, and sold under the name of Essential Salt of Lemons.

Twenty pounds of the fresh leaves yielded to Neumann six pounds of juice, from which he got two ounces two drachms and a scruple of salt, besides two ounces and six drachms of an impure saline mass.

MEDICAL USE.

A conserve is ordered by the Royal College, which is useful in inflammatory diseases: a whey is likewise made by boiling this plant in milk; and it is used in soups in hot weather, and tends to allay heat and thirst.

WALL-STONE CROP, OR WALL PEPPER.

SEDUM ACRE.

Class X. Decandria. *Order* V. Pentagynia.

ESSENT. GEN. CHAR. *Calyx* five-cleft: *Corolla* five petals: *Nectariferous scales* five, at the base of the germen: *Capsules* five.

SPEC. CHAR. *Leaves* sub-ovate, adnate, sessile, gibbous, each alternate, one rather erect: *Cyme* trifid.

DESCRIPTION.

A SMALL plant, not more than three inches high. Leaves fleshy, minute, placed like the tiles of a house. Flowers numerous, rather conspicuous, of a yellow colour.

HISTORY.

A British plant growing on houses, walls, and gravelly banks.

MEDICAL VIRTUE.

Being highly acrid and stimulant, a decoction has been found of the greatest use in violent scorbutic humours: the process is to boil a handful in eight pints of beer till reduced to four, and to take three or four ounces every other morning, or to use the same in milk: the same is likewise used in dropsy and in cancer with reported success.

LAUREL-LEAVED CANELLA.

CANELLA ALBA.

Class XI. Dodecandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* three-lobed: *Petals* five: *Anthers* sixteen, attached to the pitcher-like nectary.

DESCRIPTION.

This tree rises fifty feet in height, branching only at the top. Leaves on short footstalks, alternate, oblong, very obtuse, entire, and thick. Flowers small, dividing in clusters, of a violet colour.

HISTORY.

This is a tall tree, which is very common in Jamaica, and other West India islands.

The canella is the interior bark, freed from the epidermis, which is thin and rough, and dried in the shade. There are

two sorts of canella in the shops, differing from each other in the length and thickness of the quills: they are both the bark of the same tree, the thicker being taken from the trunk, and the thinner from the branches.

It was introduced into Europe, according to Clusius, in 1605, and is brought to us rolled up in long quills, or flat pieces, thicker than cinnamon, and both outwardly and inwardly of a whitish colour, lightly inclining to yellow. It is a warm pungent aromatic, and in distillation with water it yields a large proportion of a very active volatile oil, of a yellow, or rather reddish colour, and of a sweet odour approaching to that of cinnamon. It must not be confounded with the bark of the Wintera aromatica.

MEDICAL USE.

Canella alba is sometimes employed, from ten to fifteen grains, where a warm stimulant to the stomach is necessary. In America it is considered to be a powerful antiscorbutic. It is also added as a corrigent to other medicines.

COMMON ASARABACCA.

ASARUM EUROPÆUM.

Class XI. Dodecandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* three- or four-cleft, sitting upon the germen: *Corolla* none: *Capsule* coriaceous, coronate.

Spec. Char. *Leaves* reniform, obtuse, bifurcate.

DESCRIPTION.

The leaves rise immediately from the root, and divide from one stem in pairs: the flower proceeds from betwixt these leaves. The flowers are large, purple, and bell-shaped.

HISTORY.

This is a perennial plant, which is a native of some places of England, although the dried roots are generally brought from the Levant. It grows in moist and shady situations. It produces only two leaves, which are reniform and very obtuse. The root is fibrous, of a gray-brown colour externally, but white within. Both the roots and leaves have a nauseous, bitter, acrimonious, hot taste; their smell is strong, and not very disagreeable.

In its analysis it is said by Neumann to agree with ipecacuanha; but it seems to contain, besides its odorous principle, which is probably camphor, a portion of the same acrid principle which has been noticed when speaking of arum. Upon this its virtues depend; and as this principle is volatile, we find accordingly that asarabacca loses much of its activity by decoction and long keeping.

MEDICAL USE.

Given in substance, from half a drachm to a drachm, it evacuates powerfully both upwards and downwards. It is said that alcoholic tinctures possess both the emetic and cathartic virtues of the plant; that the extract obtained by inspissating these tinctures acts only by vomiting, and with great mildness; that an infusion in water proves cathartic, rarely emetic; that aqueous decoctions made by long boiling, and the watery extract, have no purgative or emetic quality, but prove good diaphoretics, diuretics, and emmenagogues.

The principal use of this plant among us is a sternutatory. The root of asarum is perhaps the strongest of all the vegetable errhines, white hellebore itself not excepted. Snuffed up the nose, in the quantity of a grain or two, it occasions a large evacuation of mucus, and raises a plentiful spitting. The leaves are considerably milder, and may be used to the quantity of three, four, or five grains. Geoffroy relates, that after snuffing up a dose of this errhine at night, he has frequently observed the discharge from the nose to continue for three days together; and that he has known a paralysis of the mouth and tongue cured by one dose. He recommends this medicine in stubborn disorders of the head, proceeding from viscid tenacious matter, in palsies, and in soporific distempers.

PREPARATION.

Compound Powder of Asarabacca. (Pulvis Asari Compositus. L.)

Take of asarabacca,
——— sweet marjoram,
——— Syrian herb-mastich,
——— lavender, of each, dried, one ounce:

Reduce them together to powder, which is to be kept in a closed phial.

Edin.

Take of the leaves of asarabacca, three parts;
——— the leaves of marjoram,
——— flowers of lavender, of each one part:
Rub them together to powder.

Dub.

Take of dried leaves of asarabacca, one ounce;
——— lavender flowers, two drachms:
Powder them, and keep them in a phial well closed.

These are agreeable and efficacious errhines, and superior to most of those usually sold under the name of herb snuff. They are often employed with great advantage in cases of obstinate headach, and of ophthalmias resisting other modes of cure. Taken under the form of snuff, to the extent of five or six grains, at bed-time, they will operate the succeeding day as a powerful errhine, inducing frequent sneezing, and likewise a copious discharge from the nose. It is, however, necessary, during their operation, to avoid exposure to cold.

SOAPWORT.
SAPONARIA OFFICINALIS.

Class X. Decandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Calyx* one-leafed, naked: *Petals* five, unguiculate: *Capsule* oblong, one-celled.

SPEC. CHAR. *Calyx* cylindrical: *Leaves* ovato-lanceolate.

DESCRIPTION.

THIS plant rises a foot in height. Leaves entire, pointed, furnished with three ribs. Flowers numerous, terminal, large, of a pale pink colour.

HISTORY.

Native of England, affects moist situations, and flowers in July and August. A decoction of the root of this plant produces a saponaceous froth, but more so the leaves, insomuch that these have been used by country people as a substitute for soap, and with this advantage, that this quality is not injured by acids.

MEDICAL VIRTUE.

The great Boerhaave highly extols the use of this plant in jaundice and all obstructions of the liver. Septalius affirms that the decoction cures the venereal disease, and answers better than the sarsaparilla; and this opinion has been supported by Stahl, and other eminent physicians.

COMMON AGRIMONY.

Class XI. Dodecandria. *Order* I. Digynia.

ESSENT. GEN. CHAR. *Calyx* five-toothed: *Petals* five: *Seeds* two, at the bottom of the calyx.

SPEC. CHAR. *Cauline leaves* pinnate, with an odd one petioled: *Fruit* hispid.

DESCRIPTION.

THIS plant rises to two or three feet in height. Leaves alternate, interruptedly pinnate, composed of five or six pairs, with an odd one at the end. The large pinnæ are commonly sessile, opposite, ovate, deeply serrate, rough. The flowers are yellow, on long spikes, not very conspicuous.

HISTORY.

It is common in fields and hedges, and shady places, in England; and flowers in June and July.

MEDICAL VIRTUE.

It is a mild astringent and corroborant, and is therefore given for a lax tone of the bowels and solids. For cutaneous diseases it has obtained much reputation. It is given in the form of tea twice a day.

ALMOND TREE.

AMYGDALUS COMMUNIS.

Class XII. Icosandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Catyx* five-cleft, beneath: *Petals* five: *Drupe* perforated in the nut with pores.

SPEC. CHAR. *Leaves* minutely serrated, with the base beset with glands: *Flowers* in pairs, sessile.

DESCRIPTION.

THIS tree rises twelve or more feet, and early in spring displays its pale pink flowers, which are placed in pairs upon its branches; afterwards appear the leaves, which are elliptic, narrow, pointed at the end, minutely sawed, standing upon short footstalks.

HISTORY.

The almond tree nearly resembles the peach. It originally came from Syria and Barbary, but is now much cultivated in the south of Europe. There is no apparent difference betwixt the

trees which produce the sweet and bitter almonds, and very little betwixt the kernels themselves; and it is said that the same tree has, by a difference in culture, afforded both.

. The almond is a flattish kernel, of a white colour, and of a soft sweet taste, or a disagreeable bitter one. The skins of both sorts are thin, brownish, unpleasant, and covered with an acrid powdery substance. They are very apt to become rancid on keeping, and to be preyed on by insects, which eat out the internal part, leaving the almond to appearance entire. To these circumstances regard ought to be had in the choice of them.

Sweet almonds are of greater use in food than as medicine, but they are reckoned to afford little nourishment; and when eaten in substance are not easy of digestion, unless thoroughly comminuted. They are supposed, on account of their unctuous quality, to obtund acrimonious juices in the *primæ viæ*: peeled sweet almonds, eaten six or eight at a time, sometimes give present relief in the heartburn.

Bitter almonds have been found poisonous to dogs and some other animals; and a water distilled from them, when made of a certain degree of strength, has had the same effects. Nevertheless, when eaten, they appear innocent to most men, and are every day used in cookery, on account of their agreeable flavour; but there are some habits in which the smallest quantity produces urticaria, and other unpleasant symptoms. The similarity of the smell induced Mr. Schrader to suppose that bitter almonds contained prussic acid, and he verified his conjecture by analysis. Since that time it has been found that this acid exists, but in a particular state, in all the bitter poisonous vegetables, and that in its pure state it is poisonous.

Both sorts of almonds yield, on expression, a large quantity of oil, which separates likewise upon boiling the almonds in water, and is gradually collected on the surface.

The oils obtained by expression from both sorts of almonds are in their sensible qualities the same. They should be perfectly free from smell and taste, and possess the other properties of fixed oils.

MEDICAL USE.

The general virtues of these oils are, to blunt acrimonious humours, and to soften and relax the solids: hence their use internally in tickling coughs, heat of urine, pains and inflammations; and externally, in tension and rigidity of particular parts. On triturating almonds with water, the oil and water unite together, by the mediation of the amylaceous matter of the kernel, and form an unctuous milky liquor, called an emulsion, which participates in some degree of its emollient virtue, but have this advantage above the pure oil, that they may be given in acute or inflammatory disorders, without danger of the ill effects which the oil might sometimes produce; since emulsions do not turn rancid or acrimonious by heat, as all the oils of this kind in a little time do. As the bitter almond imparts its peculiar taste when treated in this way, the sweet almonds alone are employed in making emulsions.

Several unctuous and resinous substances, of themselves not miscible with water, may, by trituration with almonds, be easily mixed with it into the form of an emulsion; and are thus excellently fitted for medicinal use. In this form camphor, and the resinous purgatives, may be commodiously taken.

It has been a common practice to dissolve from half an ounce to an ounce, or more, of gum arabic in the water used for making the emulsions; and to make patients drink freely of them, while blisters are applied to the body, in order to prevent strangury; and to order them to be used in cases of gravel, and of inflammation of the bladder or urethra; and in heat of urine from virulent gonorrhœa or other causes.

Camphor, resin of jalap, and other resinous substances, by being triturated with almonds, become miscible with water, and more mild and pleasant than they were before; and therefore they are frequently ordered to be rubbed with them, and made up into pills or boluses, with the addition of some conserve or gum arabic mucilage; or they are incorporated with watery liquors into the form of an emulsion.

Formerly the seeds of the lettuce, of the cucumber, of the white poppy, and of a number of other plants, were employed for making emulsions; but now in this country the sweet almonds supply the place of all the rest.

The bitter almonds are not so much used as they were formerly, because they have been found to destroy some sorts of animals: this effect was related by the ancients, but believed to be fictitious, because when eaten by men they appear to be innocent, and to produce no deleterious effects. However, the facts related by Wepfer in his Treatise de Cicuta Aquatica,

having been confirmed by later experiments; and it having been discovered that a water drawn from them had deleterious effects, and that the distilled water from the lauro-cerasus leaves, which have a bitter taste resembling that of bitter almonds, was still more poisonous, it raised a suspicion of the wholesomeness of those bitter substances, and has made physicians more cautious of using them, though they have been employed for making orgeate and other liqueurs, without producing any bad effects.

PREPARATIONS.

Oil of Almonds.

Those who prepare large quantities of the oil of almonds blanch them by steeping them in very hot water, which causes their epidermis to swell and separate easily. After peeling them, they dry them in a stove, then grind them in a mill like a coffee-mill, and, lastly, express the oil from the paste, enclosed in a hempen bag. By blanching the almonds, the paste which remains within the bag is sold with greater advantage to the perfumers, and the oil obtained is perfectly colourless. But the heat employed disposes the oil to become rancid, and the colour the oil acquires from the epidermis does not injure its qualities. For pharmaceutical use, therefore, the almonds should not be blanched, but merely rubbed in a piece of coarse linen, to separate, as much as possible, the brown powder adhering to the epidermis. Sixteen ounces of sweet almonds commonly give five ounces and a half of oil. Bitter almonds afford the same proportion, but the oil has a pleasant bitter taste.

Expressed Oil of Almonds. (Oleum Expressum. E.)

Take of fresh almonds, any quantity:
After having bruised them in a stone mortar, put them into a hempen bag, and express the oil, without heat.

Lond.

Pound fresh almonds, either sweet or bitter, in a mortar, then press out the oil in a cold press.

Dub.

Bruise fresh almonds in a mortar, and express the oil in a press, without heat.

Almond Emulsion. (Emulsio Amygdalæ Communis. E.)

Take of sweet almonds, one ounce;
——— water, two pounds and a half:
Beat diligently the blanched almonds in a stone mortar, gradually pouring on them the water; then strain the liquor.

Almond Milk. (Lac Amygdalæ. L. D.)

Take of sweet almonds, blanched, an ounce and a half;
——— double refined sugar, half an ounce;
——— distilled water, two pints (two pints and a half, D.):
Beat the almonds with the sugar; then rubbing them together, add by degrees the water, and strain the liquor. Almost any quantity may be taken as a frequent drink to soften coughs, and nourish the system; also to assuage urinary disorders.

Arabic Emulsion. (Emulsio Arabica. D.)

Take of gum arabic, in powder, two drachms;
——— sweet almonds, blanched,
——— double refined sugar, each half a drachm;
——— decoction of barley, one pint:
Dissolve the gum in the warm decoction; and when it is almost cold, pour it upon the almonds, previously well beaten with the sugar, and at the same time triturate them together, so as to form an emulsion, and then filter.

All these may be considered as possessing nearly the same qualities. They are merely mechanical suspensions of oil of almonds in watery fluids, by means either of the mucilage with which it is naturally combined in the almonds by itself, or assisted by the addition of gum arabic and sugar. Therefore, on standing for some days, the oily matter separates and rises to the top, not in a pure form, but like thick cream. By heat the same decomposition is immediately effected.

Great care should be taken that the almonds have not become rancid by keeping; which not only renders the emulsion extremely unpleasant, a circumstance of great consequence in a medicine that requires to be taken in large quantities, but likewise gives it injurious qualities.

The almonds are blanched by infusing them in boiling water, and peeling them. The success of the preparation depends upon beating the almonds to a smooth pulp, and triturating them with

each portion of the watery fluid, so as to form an uniform mixture before another portion be added.

CULINARY PREPARATIONS.

Almond Tarts.

Blanch and beat fine some almonds, with a little white wine and some sugar (a pound of sugar to a pound of almonds), grated bread, nutmeg, cream, and the juice of spinach to colour the almonds. Bake it in a gentle oven; and when done thicken with candied orange or citron.

Green Almond Tarts.

Pull the almonds from the tree before they shell, scrape off the down, and put them into a pan with cold spring water, then put them into a skillet with more spring water, set it on a slow fire, and let it remain till it simmers. Change the water twice, and let them remain in the last till tender. Then take them out and dry them well in a cloth. Make a syrup with double refined sugar, put them into it, and let them simmer. Do the same the next day, put them into a stone jar, and cover them very close; for if the least air comes to them they will turn black. The yellower they are before they are taken out of the water, the greener they will be after they are done. Put them into your crust, cover them with syrup, lay on the lid, and bake them in a moderate oven.

PRESCRIPTIONS.

℞. 1. Take of oil of almonds - - - drachms 6,
——— milk of almonds - - - ounces 5,
——— rose water - - - - drachms 2,
——— gum arabic,
——— purified sugar, equal parts, drachms 2:

Let these be well rubbed together, and take two table-spoonfuls four times a day, and a tea-spoonful upon coughing. This is far preferable to the common white emulsions formed by an alkali, which uniting with the oil produces a kind of soap, which readily mingling with water, forms the white appearance we observe, and is commonly disgusting to patients, and unpleasant in the stomach; whereas this suits every palate, and removes that tickling in the throat so very distressing to patients.

Respecting soap, the learned and ingenious editor of the Edinburgh New Dispensatory says: The detergent property of soap, or the power it possesses of rendering oily and resinous substances miscible with water, has given rise to very erroneous notions of its medical virtues. It was supposed to render such substances more readily soluble in the juices of the stomach, and in the fluids of the body, and to be well fitted for dissolving such oily or unctuous matters as it may meet with in the body, attenuating viscid juices, opening obstructions of the viscera, and deterging all the vessels it passes through. It has likewise been supposed a powerful menstruum for the urinary calculus; and a solution of soap in lime water has been considered as one of the strongest solvents that can be taken with safety into the stomach; for the virtue of this composition has been thought considerably greater than the aggregate of the dissolving powers of the soap and lime water when unmixed.

How erroneous these ideas are, appears evidently, when we recollect the very easy decomposition of soap, which renders it perfectly impossible that it should enter the circulating system, or indeed come into contact with the fluids even of the mouth, without being decomposed. As to the solution of soap in lime water, we may observe that it is only a clumsy way of exhibiting a solution of soda; for the soap is decomposed, an insoluble soap of lime is formed, and the soda remains in solution. The internal use of soap should therefore be confined, in our opinion, to the giving form to other substances which are not decomposed by it, and to the decomposing metallic poisons when they have been taken into the stomach. For this last purpose, a teacupful of a solution of soap, in four times its weight of water, may be drunk every three or four minutes, until a sufficient quantity be taken.

℞. 2. Take of milk of almonds - - ounce 1,
——— syrup of Tolu - - - drachms 2,
——— rose water - - - - drachms 2,
——— tincture of squills - drops 16:

Make into a draught. Four of these draughts are to be taken during the day. An admirable remedy in colds, and also in consumptions, as well as in asthma.

COMMON PEACH TREE.

AMYGDALUS PERSICA.

Class XII. Icosandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. Same as the last.

SPEC. CHAR. All the serratures of the *Leaves* acute: *Flowers* single, sessile.

DESCRIPTION.

THE peach tree is trained against walls and palings, and extends itself far. Its leaves are narrow, pointed, acutely serrate, on footstalks, and grow alternate. Flowers are light blush red. Stamina conspicuous, inserted into the calyx.

HISTORY.

Native of Persia, and was known in England in 1562. The nectarine is only a variety of the peach.

MEDICAL VIRTUE.

The fruit is cooling and nutritious, and can seldom be eaten to injure. The flowers and leaves have been made into tea, and given in the morning as a purge against worms, and with manifest success. It may be prudent to join some rhubarb with it.

PIMENTO, OR JAMAICA PEPPER.

ALLSPICE.

MYRTUS PIMENTA.

Class XII. Icosandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-cleft, above: *Petals* five: *Berry* two- or three-seeded.

SPEC. CHAR. *Flowers* panicled, trichotomous: *Leaves* oblong-lanceolate.

DESCRIPTION.

THIS species of myrtle grows to thirty feet in height. The leaves are four inches in length, veined, pointed, of a bright green. The flowers grow upon stalks, terminating the branches, and dividing into three forks; at the end of each is a flower; also one at the bifurcation, or angle.

HISTORY.

This beautiful tree is a native of Jamaica, and grows in all the woodlands on the north side. Soon after the trees have blossomed, the berries become fit for gathering; the fruit not being suffered to ripen, as in that state it is moist and glutinous, and therefore difficult to cure, and when dried becomes black and tasteless. The berries are dried by spreading them on a terrace, exposed to the sun for about seven days, during which time they gradually lose their green colour, and become of a reddish-brown.

The smell of this spice resembles a mixture of cinnamon, cloves, and nutmegs; its taste approaches to that of cloves, or a mixture of the three foregoing; whence it has received the name of *allspice*.

Neumann ascertained that its flavour resides entirely in a volatile oil heavier than water, and its pungency in a resin or a substance soluble in alcohol and insoluble in water. From 480 parts he got 120 watery extract, 30 volatile oil, and 20 alcoholic extract; and inversely, 66 alcoholic, and 100 watery.

MEDICAL VIRTUES.

Pimento is a warm aromatic stimulant, and is much used as a condiment in dressing food. As a medicine, it may be advantageously substituted for the more costly spices, especially in hospital practice.

PREPARATIONS.

ALLSPICE WATER. (Aqua Pimento.)

Take of allspice, bruised, half a pound, water sufficient to prevent empyreuma:

Macerate for four-and-twenty hours, and draw off one gallon.

POMEGRANATE TREE.

PUNICA GRANATUM.

Class XII. Icosandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* five-cleft, above: *Petals* five: *Pome* many-celled, many-seeded.

SPEC. CHAR. *Leaves* lanceolate: *Stem* arboreous.

DESCRIPTION.

THIS is a low tree, or rather shrub. Its leaves are oblong, pointed, placed upon short footstalks. The flowers are large, of a bright scarlet. The fruit is the size of an orange, and crowned with the calyx.

HISTORY.

This tree grows wild in Italy and other countries in the south of Europe. It is sometimes met with in our gardens; but the fruit, for which it is chiefly valued, rarely comes to perfection.

MEDICAL VIRTUE.

This fruit has the general qualities of the other sweet summer fruits, allaying heat, quenching thirst, and gently loosening the belly. The rind is a strong astringent, striking a permanent blue with sulphate of iron, and as such is occasionally made use of. The flowers are of an elegant red colour, in appearance resembling a dried red rose. Their taste is bitterish and astringent. They are recommended in diarrhœas, dysenteries, and other cases where astringent medicines are proper.

SLOE TREE.

PRUNUS SPINOSA.

Class XII. Icosandria. *Order* I. Monogynia.

Essent. Gen. Char. *Calyx* five-cleft, beneath: *Petals* five: *Drupe* a knob with prominent sutures.

Spec. Char. *Peduncles* solitary: *Leaves* lanceolate, smooth: *Branches* spiny.

DESCRIPTION.

This is a shrub which rises eight or ten feet. Leaves are oval, minutely serrated, standing upon short footstalks. The flowers are white, and tolerably conspicuous. The fruit is of a dark black, but covered with a bright blue exudation.

HISTORY.

The sloe grows wild in Britain. It flowers in March and April. The fruit has a very astringent sourish taste. It contains malic acid. The inspissated juice of the unripe fruit is very astringent, and is called *Acacia Germanica.*

MEDICAL USE.

An infusion of a handful of the flowers is a safe and easy purge. The powdered bark will sometimes cure agues.

PREPARATION.

Conserve of Sloes. (Conserva Pruni Silvestris. L.)

Put the sloes in water upon the fire, that they may soften, taking care that they be not broken; then take them out of the water, press out the pulp, and mix it with three times its weight of double refined sugar into a conserve.

This preparation is a gentle astringent, and may be given as such in the dose of two or three drachms. It is used also for a gargle with considerable advantage, especially where the uvula is found to be relaxed.

COMMON PRUNE, OR PLUM TREE.

PRUNUS DOMESTICA.

Class XII. Icosandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. The same as the last.

SPEC. CHAR. *Peduncles* subsolitary: *Leaves* lanceolate-ovate, convolute: *Branches* unarmed.

DESCRIPTION.

THIS species rises higher than the last, is without thorns; the leaves are oval, slightly indented at the edges, pointed, and stand upon short footstalks.

HISTORY.

This tree is found wild in hedges in England, but has probably originated from the stones of the cultivated kinds being dropped there by accident. It flowers in April. Great quantities of the dried fruit are imported from the continent, of which the French prunes are reckoned the best.

MEDICAL VIRTUES.

They contain much mucilaginous and saccharine matter, and their medical effects are, to abate heat, and gently loosen the

belly, which they perform by lubricating the passages, and softening the excrement. They are of considerable service in costiveness, accompanied with heat or irritation, which the more stimulating cathartics would tend to aggravate: where prunes are not of themselves sufficient, their action may be promoted by joining with them a little rhubarb or the like, to which may be added some carminative ingredient, to prevent their occasioning flatulency. It enters properly into the composition well known by the name of lenitive electuary; and even taken alone gently, in some constitutions, opens the body. They are stewed. The French prunes are the best.

CHERRY LAUREL.

PRUNUS LAURO-CERASUS.

Class XII. Icosandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. The same as the last.

SPEC. CHAR. *Flowers* in racemes: *Leaves* evergreen, with two glands at the back.

DESCRIPTION.

THIS is a shrub rising sometimes very high. The leaves are obovate, blunt, somewhat serrate, of a shining green, placed alternate upon strong short footstalks. The flowers are on short peduncles, in spikes, which proceed from the alæ of the leaves. The calyx is firm, divided into five segments. The corolla is composed of five small petals.

HISTORY.

It is native of the Levant, and has been long cultivated in England; for its polished evergreen leaves add much to the beauty of our shrubberies.

MEDICAL VIRTUES.

Since Dr. Madden communicated to the Royal Society an account of the deadly effects of the simple distilled water from the lauro-cerasus, many experiments have been made, here in England, to prove and confirm the truth of the same: but I do not know of any attempts that have been made towards discovering what influence this water, or the leaves from whence it is distilled, would have on animal bodies, if exhibited in small doses, and continued so for some time. Now as this, in my humble opinion, is the only way of investigating the useful properties of such plants whose modus of action we are unacquainted with, I hope the following experiments will be acceptable; for, let them be ever so simple, they may lead us to greater discoveries, and without doubt one of the most considerable services we can do to mankind, is to be diligent in making a variety of experiments, and collecting observations; and when we have procured a number of these, it will be allowable to reason upon, and deduce proper inferences from them.

To find out the virtues of plants, says Dr. Langrish, has ever been reckoned the most commendable undertaking, and nothing is more certain than that the likeliest means to discover the efficacy of such as are not as yet used in physic, is to have recourse to proper experiments with them upon brutes; for though some things may be hurtful to man that are not so to other animals, and *vice versa*, yet, as the greatest number of medicines affect both equally, the exhibition of them to brutes will afford good opportunities for observing their effects. Doubtless, says the illustrious Boyle, we trample upon many things that, did we know their uses, might serve the noblest ends. We despise many common plants of extraordinary efficacy for want of taking pains to discover their virtues; and though some may be deleterious or poisonous in themselves, or in large doses, yet it is probable that art may discover ways and means to reduce such drugs into useful medicines.

I am of opinion we have simples of our own growth capable of curing the most formidable diseases, did we but understand their efficacy, and the best manner of applying them; and I doubt not but a further acquaintance with experimental philosophy will hereafter suggest ways and means of discovering their virtues, and of making most noble medicines from such plants which are little thought of at present, at least for such uses.

I therefore, with all humility, beg leave to offer the following experiments to the consideration of the learned.

Experiment I.

To an old cast-off horse, blind, and troubled with the poll evil, I gave a pint (wine measure) of laurel water in the morning fasting, he having been tied up to an empty rack all night for that purpose.

Just before I gave it him I took seven ounces a drachm and a scruple of blood from the jugular vein, which was extremely viscid and foul, looking at first like coarse grease, and after it had stood some time it had a coat upon it above an inch thick, tough and horny, rather resembling one part of brawn than buff leather. The gore was of a deep black. The serum was pellucid, but no more in quantity than six drachms.

The pulse, before he took the laurel water*, beat 34 strokes in a minute; and indeed they were not so much accelerated by the dose as I expected, they never exceeding 45 that day. The only visible effect was stopping the humour that flowed from his poll; which, though it ran in an extraordinary manner before he took the laurel water, was quite suppressed in the evening. About two hours after he had taken his dose, I gave him some oats, which he ate greedily, and continued perfectly well all night.

The next morning I let seven ounces and a drachm of blood, which, after it had stood twenty-four hours, as the other did, separated an ounce and two scruples of clear, straw-coloured serum. The crassamentum was something improved in its colour, and the horny coat at the top of it was not quite three quarters of an inch thick.

The poll evil was quite shut up all this day; and therefore that I might know how long it would remain so, I desisted from giving any more laurel water for three days. The next morning the humour began to flow again, though not so much as before;

* It was prepared as follows: Having procured a peck of fresh laurel leaves, says Dr. Langrish, I weighed them very exactly, lest I might be deceived by different measures in future trials; and accordingly I found their weight to be two pounds one ounce and a half avoirdupois. To these I put three gallons of spring water, and distilled off, in a common alembic, two quarts, which were mixed together.

but on the third day there seemed to be as great a discharge as ever.

Experiment II.

A fine fresh young horse being seized with the glanders, was turned into a salt marsh, and neglected till the distemper arrived at its greatest height, or what the farriers call the chine glanders, which among them is deemed incurable.

The matter which was discharged from his nose was very viscid, yellow, and extremely offensive. His blood was exceeding glutinous and foul, and had a buff coat upon it more than half an inch thick. The cohesion of the crassamentum was so strong as to resist the weight of a column of mercury, in a glass tube, with an obtuse point about the size of a pea, 13½ inches high, before the point of the tube cut through. The bore of the tube was one-third of an inch diameter. Eight ounces of this blood, which was taken from the jugular vein, separated, after standing twenty-four hours, no more than two drachms ten grains of yellow serum.

July 28, 1734. I gave to this horse six ounces of laurel water diluted with half a pint of spring water, and repeated it every morning for eight days.

Aug. 5. I increased the dose to eight ounces, and continued it for eight days more.

The same day eight ounces of blood afforded one ounce two drachms of serum, not quite so yellow as before. The buff coat was three-eighths of an inch thick. The cohesion very little altered.

Aug. 13. The dose was increased to twelve ounces, and repeated every morning for eight days.

The same day eight ounces of blood separated one ounce and a half of good-coloured serum. The buff coat was now not above a quarter of an inch thick, and gave way to the weight of ten inches of mercury.

Aug. 21. The dose was increased to a pint, wine measure, and given every morning for eight days, mixed with a quart of spring water.

The same day eight ounces of blood separated one ounce four drachms and a half of dark-coloured serum. There was now very little or no appearance of a buff coat, only here and there a blueish speck, or film. Its cohesion was equal to seven inches and a quarter of mercury.

Aug. 29. Eight ounces of blood separated one ounce six drachms of dark-coloured serum. The gore had not the least film upon it, and was now grown so tender, that a column of mercury four inches high cut through it.

During the whole time the horse appeared very brisk and well, and his appetite continued good. But as to his distemper, the running at the nose increased in quantity, but the matter was altered into a white, well-digested pus, without any offensive smell, as at first.

The quantity of laurel water which was taken in the whole time was 336 ounces, or 21 pints.

Experiment III.

The following experiments were made to show that even out of the body the laurel water has great power over the blood.

To six ounces of blood extracted from a young man violently afflicted with an inflammatory rheumatism, I put one ounce of laurel water, which altered the crassamentum, rendering it soft and tender, without a speck of size upon it. The serum was of a light red, like Burgundy wine, and, after standing 24 hours, weighed exactly two ounces.

Six ounces more of the same blood, being saved in another porringer, by itself, appeared very foul and sizy, with a thick, tough buff coat upon it. The serum was of a bright yellow, and weighed two ounces one drachm and ten grains.

Experiment IV.

Sixteen ounces of blood being drawn from a woman on the third day of a pleuritic fever, I put one ounce of warm laurel water into a bason which received about one-half of it. The next day I found the blood which was mixed with the laurel water of a bright colour, the coagulum exceeding tender, the serum of a pale red, and in a small quantity.

The other parcel of blood had a buff coat upon it at least one-third of an inch thick; the grumous part looked very foul and black; the serum was of a straw colour, and much more in quantity than what was in the other porringer. But this patient being in the country, I had not an opportunity of examining into the exact proportions.

Experiment V.

Half an ounce of laurel water being mixed with three ounces

of blood, as it ran from the arm of a child ten years old, and troubled with the St. Anthony's fire, it preserved a beautiful colour, and let go one ounce three drachms of dark-coloured serum.

Whereas three ounces six drachms and fifty grains of the same blood, in another cup, separated one ounce a drachm and a scruple of straw-coloured serum. The fibrous part had a coat one-sixth of an inch thick, exactly resembling melted suet.

I could add a great many more experiments of this kind, but as they all exhibited the same phænomena it would be useless. I shall therefore only observe, that from these experiments it is evidently demonstrated that laurel water has a power of making great alterations in the blood.

The kernel-like flavour which these leaves impart being generally esteemed grateful, has sometimes caused them to be employed for culinary purposes, and especially in custards, puddings, blancmange, &c.; and as the proportion of this sapid matter of the leaf to the quantity of the milk is commonly inconsiderable, bad effects have seldom ensued. But as the poisonous quality of this laurel is now indubitably proved, the public ought to be cautioned against its internal use.

The following communication to the Royal Society, by Dr. Madden of Dublin, contains the first and principal proofs of the deleterious effects of this vegetable upon mankind:—"A very extraordinary accident that fell out here some months ago, has discovered to us a most dangerous poison, which was never before known to be so, though it has been in frequent use among us. The thing I mean is a simple water, distilled from the leaves of the *lauro-cerasus*. The water is at first of a milky colour, but the oil which comes over the helm with it, being in a good measure separated from the phlegm, by passing it through a flannel bag, it becomes as clear as common water. It has the smell of bitter almond or peach kernel, and has been for many years in frequent use among our housewives and cooks, to give that agreeable flavour to their creams and puddings. It has also been much in use among our drinkers of drams; and the proportion they generally use it in, has been one part of laurel water to four of brandy. Nor has this practice, however frequent, ever been attended with any apparent ill consequences, till some time in the month of September 1728, when it happened that one Martha Boyse, a servant, who lived with a person that sold

great quantities of this water, got a bottle of it from her mistress, and gave it to her mother, Ann Boyse, as a very rich cordial. Ann Boyse made a present of it to Frances Eaton, her sister, who was a shopkeeper in town, and who she thought might oblige her customers with it. Accordingly, in a few days, she gave about two ounces of the water to a woman called Mary Whaley, who drank about two-thirds of what was filled out, and went away. Frances Eaton drank the rest. In a quarter of an hour after Mary Whaley had drank the water (as I am informed) she complained of a violent disorder in her stomach, soon after lost her speech, and died in about an hour, without vomiting or purging, or any convulsion.

"The shopkeeper, Frances Eaton, sent word to her sister, Ann Boyse, of what had happened, who came to her upon the message, and affirmed that it was not possible the cordial (as she called it) could have occasioned the death of the woman; and to convince her of it, she filled out about three spoonfuls, and drank it. She continued talking with Frances Eaton about two minutes longer, and was so earnest to persuade her of the liquor's being inoffensive, that she drank two spoonfuls more, but was hardly well seated in her chair when she died without the least groan or convulsion. Frances Eaton, who, as before observed, had drank somewhat above a spoonful, found no disorder in her stomach or elsewhere; but to prevent any ill consequence she took a vomit immediately, and has been well ever since."

Though this vegetable seems to have escaped the notice of Stoerck, yet it is not without advocates for its medicinal use. Linnæus informs us, that in Switzerland it is commonly and successfully used in pulmonary complaints. Langrish mentions its efficacy in agues; and as Bergius found bitter almonds to have this effect, we may from analogy conclude that this power of the lauro-cerasus is well established. Baylies found that it possessed a remarkable power of diluting the blood, and from experience recommended it in all cases of disease supposed to proceed from too dense a state of that fluid; adducing particular instances of its efficacy in rheumatism, asthma, and in scirrhous affections. Nor does this author seem to have been much afraid of the deleterious quality of the lauro-cerasus, as he directs a pound of its leaves to be macerated in a pint of water, of which he gives a tea-spoonful three or four times a day.

COMMON QUINCE TREE.

PYRUS CYDONIA.

Class XII. Icosandria. *Order* V. Pentagynia.

Essent. Gen. Char. *Calyx* five-cleft: *Petals* five: *Pome* beneath, five-celled, many seeded.

Spec. Char. *Leaves* entire: *Flowers* solitary.

DESCRIPTION.

This is rather a small tree. Leaves simple, oval, of a dusky green, underneath whitish, and standing upon short footstalks. Flowers solitary, conspicuous, of a pale red and white, placed in the axillæ of the leaves. The calyx is cut into five notched segments.

HISTORY.

It was originally a native of Cydon, in Crete, and is now common in gardens.

MEDICAL USE.

The seeds are successfully employed with liquorice root sliced in diseases of the kidneys and the stone. Its seeds abound so much with a mucilage, that one drachm will render three pints

of water quite thick and ropy; they may be used as the other soft mucilaginous substances. We have in our dispensatory a *mucilago seminum cydoniorum*, which ought not to be ordered as a preparation to be kept in the shops, because it soon grows mouldy in keeping. This mucilage, with conserve and syrup, makes a good linctus for easing a tickling cough, and has been used where oily medicines disagree.

OFFICINAL PREPARATION.

Mucilage of Quince Seeds. (Mucilago Seminum Cydonii Mali. L.)

Take of quince-seeds, one drachm;
——— distilled water, eight ounces, by measure:
Boil, with a slow fire, for ten minutes; then pass it through linen.

This mucilage, though sufficiently agreeable, is perfectly superfluous, especially as it is apt to spoil, from being mixed with the other principles of the seeds soluble in water. It is, besides, never so transparent as mucilage carefully prepared from gum arabic, is not cheaper, and is unfit for many purposes, being coagulated by acids.

CULINARY PREPARATION.

Quince Pudding.

Scald your quinces tender, pare them thin, scrape off the pulp, mix with sugar very sweet, and add a little ginger and cinnamon. To a pint of cream you must put three or four yolks of eggs, and stir it into your quinces till they are of a good thickness. Butter your dish, pour it in, and bake it.

RED OFFICINAL ROSE.

ROSA GALLICA.

Class XII. Icosandria. *Order* V. Polygynia.

Essent. Gen. Char. *Petals* five: *Calyx* urceolate, five-cleft, fleshy, narrow at the neck: *Seeds* many, hispid, affixed to the interior sides of the calyx.

Spec. Char. *Germens* ovate, hispid: *Stems* and *Petioles* hispid-aculeate.

DESCRIPTION.

The petals of this rose, though large and spreading, are not half so numerous as in the centifolia, and are of a deep crimson.

HISTORY.

Native of the south of Europe, now common in our gardens, flowering in June and July.

PREPARATIONS.

Conserve of Roses. (Conserva Rosæ Gallicæ.)

This is made like other conserves, but from the rose buds; and in this form, on account of the large proportion of sugar, only substances of considerable activity can be taken with advantage

as medicines. And, indeed, conserves are at present considered chiefly as auxiliaries to medicines of greater efficacy, or as intermediums for joining them together. They are very convenient for reducing into boluses or pills the more ponderous powders, as submuriate of mercury, the oxides of iron, and other mineral preparations; which, with liquid, or less consistent matters, as syrups, will not cohere.

INFUSION OF ROSES. (Infusum Rosæ Gallicæ. E.)

Take of the petals of red roses, dried, one ounce;
——— boiling water, five pounds;
——— sulphuric acid, one drachm;
——— white sugar, two ounces:
Macerate the petals with the boiling water in an earthen vessel, which is not glazed with lead, for four hours; then add the acid, strain the liquor, and dissolve the sugar in it.

INFUSION OF ROSES. (Infusum Rosæ. L.)

Take of dried red roses, half an ounce;
——— diluted vitriolic acid, three drachms;
——— boiling distilled water, two pints and a half;
——— double refined sugar, an ounce and a half:
First pour the water on the petals in a glass vessel, then add the diluted vitriolic acid, and macerate for half an hour. Strain the liquor, when cold, and add the sugar.

The differences in the directions for preparing this infusion are very material. In fact, the rose leaves have very little effect, except in giving the mixture an elegant red colour. Its sub-acid and astringent virtues depend entirely on the sulphuric acid. Altogether, however, it is an elegant medicine, and forms a very grateful addition to juleps in hæmorrhagies, and in all cases which require mild coolers and sub-astringents: it is sometimes taken with boluses or electuaries of the bark, and likewise makes a good gargle.

HONEY OF ROSES. (Mel Rosæ. L. D.)

Take of dried red rose buds, (with the heels cut off, D.) four ounces;
——— boiling distilled water, three pints;
——— clarified honey, (honey, D.) five pounds:
Macerate the rose leaves in the water for six hours; then mix the honey with the strained liquor, and boil the mixture to the thickness of a syrup, (removing the scum, D.)

This preparation is not unfrequently used as a mild, cooling detergent, particularly in gargles for ulcerations and inflammation of the mouth and tonsils. The rose buds here used should be hastily dried, that they may the better preserve their astringency.

The Dublin college, in making this and some similar preparations, used unclarified honey, with the idea, probably, that it may be equally well clarified in the course of the preparation itself. This is no doubt true; but as we do not know what effect the clarification may have on the active substances added to the honey, we think that the use of clarified honey, as directed by the London college, is preferable.

SYRUP OF RED ROSES. (Syrupus Rosæ Gallicæ. E.)

Take of the dried petals of red roses, seven ounces;
——— double refined sugar, six pounds;
——— boiling water, five pounds:
Macerate the roses in the water for twelve hours; then boil a little, and strain the liquor; add to it the sugar, and boil again for a little, so as to form a syrup.

This syrup is supposed to be mildly astringent, but is principally valued on account of its red colour.

PRESCRIPTION.

℞. 1. Take of the conserve of red roses - ounce 1,
——— the conserve of hips - - ounce 1,
——— gum arabic - - - - - drachms 2,
——— syrup of violets - - - drachms 3:
Make into a linctus. This is excellent in all coughs, and removes the tickling of rheums; and a tea-spoonful may be frequently taken, according to the violence of the disease.

℞. 2. Take of the infusion of red roses - ounces 8,
——— syrup of the wild poppy - drachm 1½,
——— diluted vitriolic acid - - drops 20,
——— compound powder of tragacanth, drachm 1:
Make a mixture, of which take two table-spoonfuls four times a day. Ordered in spitting of blood, and night perspirations; a medicine of much pleasantness and beauty.

℞. 3. Take of honey of roses - - ounces 2,
——— decoction of barley - ounces 6:
This is often injected upon ulcers of the tonsils. Make it first luke warm.

DAMASK ROSE.

ROSA CENTIFOLIA.

Class XII. Icosandria. *Order* V. Polygynia.

ESSENT. GEN. CHAR. As the last.

SPEC. CHAR. *Germens* ovate: *Peduncles* hispid: *Stems* and *Petals* hispid and aculeate: *Petioles* unarmed.

DESCRIPTION.

THE leaves are pinnated, consisting of two or four pair, and an odd one at the end; these are oblong and serrated, on short footstalks. The flowers are very large, beautiful, terminal, two or three together. The calyx is cut into five segments, and three of these cut again into other segments.

HISTORY.

The native country of this shrub is unknown, but the delightful fragrance of its flowers has rendered it the favourite ornament of every garden. In the former editions of Linnæus, the damask rose was considered as a variety only of the rosa centifolia; but Aiton, Du Roy, and Willdenow have arranged it as a distinct species. It is, however, highly probable, that the petals of all the varieties of the rosa centifolia, or Dutch hun-

dred-leaved rose, Willdenow's fifteenth species, are employed indiscriminately with those of the real damask rose in the distillation of rose water.

PREPARATIONS.

ROSE WATER. (Aqua Rosæ. L.)

Take of the leaves of fresh damask roses, with the heels cut off, six pounds;

——— of water, as much as to prevent burning:

Distil off a gallon.

Note. We have ordered the distilled waters to be drawn from dried herbs, because the fresh cannot be got at all times in the year. Whenever the fresh are used, the weights must be increased; but whether the fresh or dry are made use of, we leave it to the judgement of the operator to vary the weight, according as he thinks the plants are in greater or less perfection, owing to the season in which they grew, or in which they were collected.

Mr. Nicholson mentions, that as rose water is exceedingly apt to spoil, the apothecaries generally prepare it in small quantities at a time from the leaves, preserved by packing them closely in cans with common salt. This, we understand, is not the practice in Edinburgh; and, indeed, cannot succeed with the petals of the damask rose; for they lose their smell by drying. The London apothecaries, therefore, probably use the red rose. The spoiling of some waters is owing to some mucilage carried over in the distillation; for, if rectified by a second distillation, they keep perfectly well for any length of time.

PRESCRIPTIONS.

℞. 1. Take of vitriolated zinc - - grains 10,
——— distilled vinegar - - drachms 2,
——— rose water - - - drachms 14:

Make into a wash for the eyes, and apply this frequently. This is used when the eye-lids are greatly tumified, and has performed wonders in that complaint.

℞. 2. Take of vitriolated zinc - - grains 2,
——— rose water - - - ounces 7:

Pour some of this lotion into two cups, have a piece of rag in each cup, and keep the wet rag to the diseased eye, and when this is warm, remove it, and take the cold rag from the other cup, and so apply the lotion cold. Even rose water by itself is very useful for strengthening the eyes, and its smell is very reviving and grateful.

DOG ROSE.

ROSA CANINA.

Class XII. Icosandria. *Order* V. Polygynia.

ESSENT. GEN. CHAR. As the last.

SPEC. CHAR. *Germens* ovate: *Peduncles* smooth: *Stem* and *Petals* aculeate.

DESCRIPTION.

THE leaves are pinnate, composed of one, two, or three pairs of pinnæ, with an odd one at the end. The flowers are large and terminal, two or three together. The corolla is composed of five heart-shaped petals. The fruit is an oval, fleshy berry.

HISTORY.

Native of Britain, and gives a beautiful appearance to the hedges in the month of June.

MEDICAL VIRTUE.

A conserve of hips is made from this, which is more agreeable than that of the red rose, and is used for the same purpose.

RASPBERRY BUSH.

RUBUS IDÆUS.

Class XII. Icosandria. *Order* V. Polygynia.

ESSENT. GEN. CHAR. *Calyx* five-cleft: *Petals* five: *Berry* compound: the *Acini* containing each one seed.

SPEC. CHAR. *Leaves* five, or three pairs of pinnæ: *Stem* aculeated: *Petioles* channelled.

DESCRIPTION.

THE stem of this plant is defended with spines, and rises three or four feet in height. The leaves are rough, veined, serrated, downy beneath, composed of three or five oval pinnæ.

HISTORY.

Native of Britain, found in woods, rocky mountains, and moist situations, producing flowers in May and June.

MEDICAL VIRTUE.

A cooling fruit, eaten with sugar.

PREPARATION.

Syrup of Raspberry.

This is a very pleasant cooling syrup; and, with this intention, it is occasionally used in draughts and juleps, for quenching thirst, abating heat, &c. in bilious or inflammatory distempers. Sometimes, likewise, it is employed in gargarisms for inflammations of the mouth and tonsils.

CULINARY USES.

Raspberry Jam.

Let your raspberries be ripe, and dry. Mash, strew them in their weight of loaf sugar, and half their weight of the juice of white currants. Boil them half an hour over a clear slow fire, skim well, and put them into pots, or glasses. Tie down with brandy papers, and keep them dry. Strew sugar over as soon as you can after the berries are gathered, and to preserve their fine flavour boil them as soon as you can.

Raspberry Dumplings.

Make a puff paste, and roll it out. Spread raspberry jam, and make it into dumplings. Boil them an hour; pour melted butter into a dish, and strew grated sugar over.

Raspberry Tarts, and Cream.

Roll out thin puff paste, lay it in a pattypan; put in raspberries, and strew fine sugar over them. Put on a lid, and when baked, cut it open, and put in half a pint of cream, the yolks of two eggs well beaten, and a little sugar.

COMMON TORMENTIL.

TORMENTILLA ERECTA.

Class XII. Icosandria. *Order* V. Polygynia.

Essent. Gen. Char. *Calyx* eight-cleft: *Petals* four: *Seed* roundish, naked, affixed to a small dry receptacle.

Spec. Char. *Stem* somewhat erect: *Leaves* sessile.

DESCRIPTION.

This plant has slender stems rising five or six inches, ornamented with sessile leaves cut into five lobes, of which three are largest before, and two smaller behind the stem, all deeply serrate. Flowers single, on long peduncles, springing from the alæ of the leaves.

HISTORY.

Tormentil is perennial, and found wild in woods and on commons: it has long slender stalks, with usually seven long narrow leaves or segments at a joint; the root is for the most part crooked and knotty, of a blackish colour on the outside, and reddish within. It has an austere styptic taste, accompanied with a slight kind of aromatic flavour. Neumann got from 960 grains, 365 alcoholic, and 170 watery extract; and inversely, 570 watery, and eight alcoholic.

MEDICAL VIRTUES.

The root is the only part of the plant which is used medici-

nally; it has a strong styptic taste, but imparts no peculiar sapid flavour. As a proof of its powerful astringency, it has been subsituted for oak bark in the tanning of skins for leather. This root has been long held in great estimation by physicians as a very useful astringent; and as the resin it contains is very inconsiderable, it seems more particularly adapted to those cases where the heating and stimulating medicines of this class are less proper; as in phthisical diarrhœas, diarrhœa cruenta, &c. Dr. Cullen thinks "it has been justly commended for every virtue that is competent to astringents," and says: "I myself have had several instances of its virtues in this respect; and particularly I have found it, both by itself and as joined with gentian, cure intermittent fevers; but it must be given in substance, and in large quantities." Rutty recommends it in these words: "Ulcera vetera et putrida sanat vino vel aqua decocta collutione et inspersu. In vino cocta optime deterget et roborat, in ulceribus scorbuticis oris, gutturis, et faucium ac in gingivis dissolutis, sanguinem stillantibus. Decocta ad appetitum deperditum maxime valet, tonum ventriculi restituens, et sordes ejus abstergens. Non est vegetabile quod in fluxionibus alvi efficacius sit. In dysenteria epidemica quidam in ore tenent ad præcavendum contagium. In fluxu sanguinis, fluore albo, et mictu involuntario valet." That is, "it cures old and putrid ulcers, what is termed scurvy in the gums, restores appetite, gives tone to the bowels, is most serviceable in fluxes, passing of blood, fluor albus, and involuntary discharges of water. Held in the mouth, it wards off the contagion of dysentery."

I witnessed once most extraordinary cures performed by this root. A poor man, fond of botanical excursions, either by tradition or accident knew the powers of this root; and by making a strong decoction of it, sweetened with honey, he cured agues which had resisted the bark, long standing diarrhœas, ulcers of the legs turned out of hospitals as incurable, the worst scorbutic ulcers, the confluent small-pox, the whooping-cough, fluxes, &c. &c., so as to excite the attention of lord William Russell, who allowed him a piece of ground out of his park to cultivate his plant, which he kept as a secret; and in fluxes of blood I have found a drachm, given four times a day in an infusion of hops, do wonders. The danger of suddenly checking discharges should be guarded against, of which this old man knew nothing; and occasional purges should be used, or an issue made in the thigh.

COMMON CINQUEFOIL.

POTENTILLA REPTANS.

Class XII. Icosandria. *Order* V. Polygynia.

Essent. Gen. Char. *Calyx* ten-cleft: *Stem* roundish: *Seed* naked, roundish, affixed to a small receptacle.

Spec. Char. *Leaves* quinate: *Stem* repent: *Peduncles* one-flowered.

DESCRIPTION.

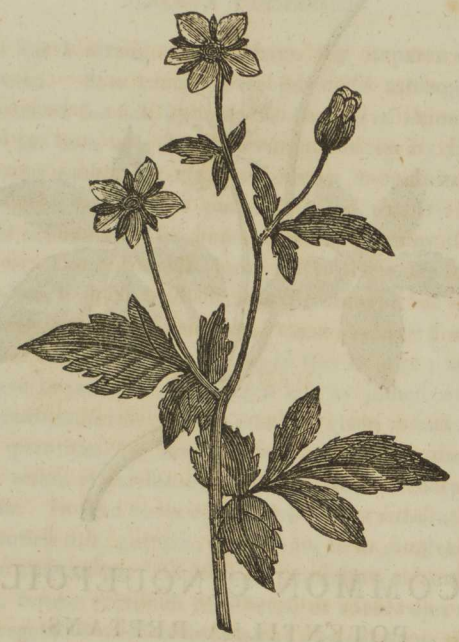
The stalks trail along the ground. The leaves are five, placed together, and sometimes seven, of unequal sizes, obtuse, serrated, veined, standing upon a long petiole. The corolla, like the last, which it greatly resembles, is yellow.

HISTORY.

It is a native of Britain, common on meadow banks, and the sides of roads; flowers in July and September.

VIRTUES.

Like the last plant it is astringent, but with less power, and has been employed in the same diseases.



COMMON AVENS.

GEUM URBANUM.

Class XII. Icosandria. *Order* V. Polygynia.

ESSENT. GEN. CHAR. *Calyx* ten-cleft: *Petals* five: *Seeds* with a kneed awn.

SPEC. CHAR. *Flowers* erect: *Fruit* globular, villous: *Awns* hooked, naked: *Leaves* lyre-shaped.

DESCRIPTION.

RISES a foot high. Root fibrous and aromatic. Leaves large, lyre-shaped, and rough. Stalks upright, hirsute. Flowers terminal, yellow.

HISTORY.

Avens is a common perennial plant, which grows wild in shady uncultivated places, and flowers from May to August. The root is fibrous, externally of a dark red colour, internally white, and has the flavour of cloves, with a bitterish astringent taste. Its virtues are said to be increased by cultivation, and

the large roots are preferred to the smaller fibres. It must be dug up in spring, when the leaves begin to appear, for the smell is then strongest: indeed, it is hardly to be perceived when it flowers. It must be dried in the air, but not with a strong heat, as its flavour would be dissipated, and its virtues diminished. It tinges both water and alcohol red. Half an ounce yielded 30 grains of resinous, and 20 of gummy extract; the former had the smell of the root, the latter was without smell, and merely astringent. Water distilled from it has a pleasant flavour, and carries over a little thickish essential oil.

MEDICAL USE.

Avens is an old febrifuge, mentioned by Ray, but again brought into notice by Boerhaave. It is recommended as a substitute for cinchona in intermittent fevers, dysentery, and chronic diarrhœas, flatulent colic, affections of the *primæ viæ*, asthmatic symptoms, and cases of debility. Half a drachm or a drachm of the powder may be given four times a day, simply, or made up into an electuary with honey or rhubarb. Two table-spoonfuls of the decoction may be given every hour; or a table-spoonful of a tincture, made with an ounce of the root to a pound of alcohol, three or four times a day. As an indigenous remedy it deserves notice.

WHITE POPPY.

PAPAVER SOMNIFERUM.

Class XIII. Polyandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* four petals: *Calyx* two-leaved: *Capsule* one-celled, gaping with pores, arising from a permanent, and, when ripe, an upright stigma.

SPEC. CHAR. *Calyx* and *Capsules* smooth: *Leaves* amplexicaul, with incisions.

DESCRIPTION.

THIS plant rises two or three feet in height. The leaves are alternate, ovate, smooth, deeply cut into various segments, and closely embrace the stem. The calyx soon drops, the flowers are large and terminal. The stigma is a large flat radiated crown covering the germen, which afterward becomes the pericarp.

HISTORY.

The white poppy originally came from Asia, and is there much cultivated, and it produces the opium imported from thence, which comes to us in flat cakes covered with leaves: it

has a reddish brown colour, inclining to black, and a strong peculiar smell. Six hundred thousand pounds of it are annually exported from the Ganges! It is remarkable that the seeds possess not any or a very slight narcotic quality. They consist of a simple farinaceous matter, united with a bland oil, and serve as food in some countries, and are given to fatten poultry.

The manner in which this drug is collected in the East has been described long ago by Kæmpfer and others; but the most circumstantial detail of it is given by Mr. Kerr, in the fifth volume of Medical Observations and Inquiries.

When the capsules are half grown, at sun-set, they make two longitudinal double incisions, passing from below upwards, and taking care not to penetrate the internal cavity. In Persia, according to Kæmpfer, a five-pointed knife is used for this purpose. The incisions are repeated every evening, until each capsule has received six or eight wounds: they are then allowed to ripen their seeds. If the wound were to be made in the heat of the day, a cicatrix would be too soon formed. The night dews favour the exstillation of the juice.

Early in the morning, old women, boys, and girls collect the juice, by scraping it off with a small iron scoop, and deposit the whole in an earthen pot, where it is worked by the hand in the open sunshine, until it becomes of a considerable thickness: it is then formed into cakes of a globular shape, and about four pounds in weight, and laid into little earthen basins to be further dried. These cakes are then covered over with poppy or tobacco leaves, and thus dried until they are fit for sale. Opium is frequently adulterated with cow dung, the extract of the plant procured by boiling, and various other substances of which they make a secret.

It appears that the poppy may be cultivated for the purpose of obtaining opium to great advantage in Britain. Professor Alston, of Edinburgh, said long since, that the milky juice, drawn by incision from poppy heads, and thickened either in the sun or shade, has also the characters of good opium; its colour, consistence, taste, smell, faculties, phænomena, are all the same; only, if carefully collected, it is more pure and free from feculencies.

Similar remarks have been made by others; to which, says Dr. Woodville, we may add our own; for during that summer

(probably 1792) we at different times made incisions in the green capsules of the white poppy, and collected the juice, which soon acquired a due consistence, and was found, both by its sensible qualities and effects, to be very pure opium. May I be permitted to add, that near fifty years ago I frequently amused myself with slashing the green poppy-heads, and collecting a most pure and well digested opium from them?

But the merit of first cultivating the poppy for opium is due to Mr. John Ball, of Williton, who in the year 1796 was rewarded by the Society of Arts, Manufactures, and Commerce, for procuring opium in an unsophisticated state from British poppies, and communicating his mode of preparing it to the Society for the use of the public.

When the leaves die away and drop off, the capsules or heads being then in a green state, is the proper time for extracting the opium, by making four or five small longitudinal incisions with a sharp-pointed knife, about an inch long, on one side only of the head, taking care not to cut to the seeds: immediately on the incision being made, a milky fluid will issue out, which being of a glutinous nature, will adhere to the bottom of the incision; but some are so luxuriant that it will drop from the head. The next day, if the weather should be fine, the opium will be of a grayish substance, and some almost turning black; it is then to be scraped off, with the edge of a knife, into pans or pots; and in a day or two it will be of a proper consistence to make into a mass, and to be potted.

As soon as the opium is all taken away from one side, make incisions on the opposite side, and proceed in the same manner. The reason of not making the incisions all round at once is, that the opium cannot be so conveniently taken away; but every person, upon trial, will be the best judge. Children may with ease be soon taught to make the incisions, and take off the opium, so that the expense will be trifling.

An instrument might be made, of a concave form, with four or five pointed lancets, about the twelfth or fourteenth part of an inch, to make the incisions at once.

Mr. Ball calculates, that supposing one poppy to grow in one square foot of earth, and to produce only one grain of opium, more than fifty pounds will be collected from one statute acre. But since one poppy produces from three or four to ten heads,

each incision sometimes producing two or three grains, what must be the produce, and what the profit at the present price of opium, twenty-two shillings the pound!

I am sensible that great abatements must be made in practice from such theoretical calculations as these; and that in our moist climate many seasons will occur, and many days in almost every summer, unfavourable to the collection of the opium. It is, however, with all its disadvantages, a very important object to cultivate the poppy for this purpose in Britain; considering the great price of foreign opium, the increasing call for it in medicine, the adulteration of what is imported by rice flour and other articles, and the employment that it will find in the collection for women and children.

Mr. Ball adds, that in 1795, from a bed of self-sown poppies 576 feet square, he collected four ounces of opium, though the plants were very thick; and from a few plants that stood detached he took from fifteen to thirty-four grains: this ground had been well manured with rotten dung. He remarks, that semidouble flowers, and those of a dark colour, produced the most opium; that the heads should be about the size of a walnut before the incisions are made; and that the foreign dried poppy heads are full three times as big as ours. Mr. Miller remarks also that they are of a different shape; but the size is only owing to climate, and the shape indicates no more than a variety.

Mr. Ball collected from one semidouble poppy a quantity which he supposes to be more than thirty grains; but this plant had twenty-eight heads on it. He prefers the double and semi-double-flowering plants to those which have single flowers. But I have observed that the single poppy, cultivated by our physic-gardeners here for the seed and the heads, has generally larger heads than the double poppy cultivated in gardens.

But after all, the point of most importance respecting the cultivation of the poppy for opium in Britain is, whether its quality be equal to that of foreign opium. This has been fully ascertained, not only by a druggist in London having agreed with Mr. Ball to give him the same price for what he should make in the year 1795, as the foreign drug should bear at that time, but by the testimony of several eminent medical gentlemen in London, who tried it in consequence of the request of the Society for the Encouragement of Arts, Manufactures, and Commerce. Dr. Latham observes, that in its sensible qualities it does not seem

inferior to any; that it possesses the excellence of being perfectly clean, which must always be an advantage when given in a crude state; and that probably the purified extract of the foreign would not be superior to the English. Dr. Pearson also reports that he found the English opium to be equally powerful, and to produce the same effects as the best foreign preparation of this drug. Mr. Wilson not only found the English drug equal in point of strength to the best extract from foreign opium, but far superior in flavour, which, in the extract, is much injured by the boiling, and free from the impurities which are so abundant in crude foreign opium.

The next candidate for the premium of a gold medal, value fifty guineas, was the indefatigable Mr. Jones, who thus addressed the president of the Society instituted at London for the Encouragement of Arts, Manufactures, and Commerce:

Sir, in the summer of the year 1794 I cultivated a considerable number of white poppies (entitled in the New London Pharmacopœia, *Papaver somniferum*, and in another place *Papaver hortense semine albo*), when a few of the heads or capsules having been broken off by the wind, I observed at the extremity of the stalks a substance in every respect resembling Turkey opium. This accidental circumstance bringing to my recollection its method of production, as related in the Encyclopædia and elsewhere, I wounded a considerable number of them with my penknife, and in the course of the day collected a small quantity of the abovementioned substance. As this circumstance took place while we were cutting lavender, it happened that an old and experienced servant, who was afterwards to distil it, was directing and assisting, and we agreed that it was probably in effect equal to, and was certainly more pure than, any we had ever seen.

From this period I have never entirely lost sight of the object I am now to consider; but, on account of various avocations, and particularly my rhubarb plantation, which at this time required all the attention I could spare, it was not in my power to engage in an undertaking of such magnitude; and more especially on a scale so extensive as that which I have already determined to adopt, under a persuasion that experiments, when more confined, are for the most part fallacious.

As preparatory, however, I have not failed every year to repeat the operation, at once establishing its practicability, and

availing myself of many advantages which can only be derived from observation and experience.

The inclosed certificates will inform the Society that at length my plan has been carried into execution, but not with the degree of success that ought, and might have been expected, to attend so extensive an experiment.

It must be confessed that had I been at all aware what an almost Herculean labour I was about to encounter, I really suspect whether my resolution would have been equal to the task. Lest, however, this should discourage others from prosecuting this object, it is necessary to be more explicit.

Difficulties, and such indeed as are considerable, must necessarily attend most undertakings which have been hitherto unattempted; but the disappointments I sustained, though more numerous than generally fall to the share of a person under such circumstances, did not all arise out of the undertaking itself, but from causes, some of which may be easily guarded against in future, while others may never again occur.

Two years have passed in producing what, I flatter myself, the Society will consider deserving their premium, particularly if I am enabled to render the operation much more simple than may at first sight be supposed.

The claimant, I observe, is required to submit to the Society his particular method of cultivating the poppies. As the mode adopted in the present instance arose rather from necessity than choice, I must go back as far as the autumn of 1797, to show how it happened.

Five acres of ground and upwards, situated in the parish of Enfield, in the county of Middlesex, I appropriated to this experiment at the period above mentioned; which, being ploughed several times previous to the following March, were then sown broad-cast; and the weather proving favourable, the seed soon vegetated, and appearances were very promising. From the neglected state of the land, however, to which I was unfortunately a stranger, such a profusion of weeds sprang up among them, that, after many fruitless efforts at recovery, I was under the mortifying necessity of ploughing them all up together. This circumstance not taking place till the latter end of April, the season for resowing was elapsed; and as to cropping my field with oats or barley, a measure very strongly recommended to

me, I considered it as a deviation from my original purpose, and therefore, without paying any attention to it, gave the field a summer fallowing, conceiving that poppies might be sown with equal and perhaps greater advantage in autumn.

Finding that the broad-cast method of sowing precluded the possibility of hoeing where the land is much infested with weeds, I now adopted a different mode, and drilled in the seed with a very simple yet efficient machine, which I purchased of Mr. Macdougal, of Oxford-street; but, as the weather began to be very severe so early as November, and continued so with few intermissions, the succeeding March found me very little forwarder. Yet I persevered, and once more resolved to drill the whole five acres: they came up extremely well, and, as I expected, accompanied with innumerable weeds; but these by well-timed application were eradicated, though not without considerable difficulty.

I now thought myself secure; for nothing could assume a better appearance, till the beginning of May. Alas! I could not foresee the cold and remarkably dry weather that ensued, and prevailed, I believe, for six weeks successively. Hence the growth of some became stunted, and others were entirely destroyed; but happily some warm refreshing showers fell just time enough to rescue the remainder.

From these I have procured upwards of twenty-one pounds of solid opium, five of which, in compliance with the Society's requisition, I have sent for their inspection and examination.

At one time I began to despair of even procuring this, comparatively speaking, small quantity, (though it is not a fifth part of what I ought to have had,) owing to the extraordinary rains and winds which we experienced through the whole of the summer months.

This recital, as I have before observed, ought on no account to intimidate others from a cooperation; for it is obvious that the former inconveniences originated in my own ignorance, whilst the latter depended upon causes that in all probability may never occur again.

Mr. Ball, in a letter published in one of the volumes of the Society's Transactions, advances an opinion, which I consider as very fallacious, respecting the quality of land adapted to the growth of poppies. He seems to be very little acquainted about

this point, and hints the probability of their being cultivated almost every where. I well know that poppies, like many other vegetables, will grow in soils of every description; but of this I am fully assured, that, like the rest, they have all their particular and favourite soil, viz. a sandy loam, and that the better this is, the more advantages will accrue to the cultivator: for it should be considered, that in bad, as well as good ground, the same expenses of cultivation, scarification, and collecting, will be incurred for perhaps a fourth share of the produce.

I shall now lay before the Society some general remarks on the cultivation of poppies, and then conclude with submitting a few hints and directions respecting the preparation of opium.

Having a tap-root, their size will consequently be proportionate to the depth of earth they are enabled to penetrate. Hence the necessity of land that will admit of deep ploughing. The fineness of the surface, too, is very essential. As the seed is so small, and the plants, on their first coming up, so exceedingly tender, the bush-harrow should always be used after those which are commonly employed. By this means a greater number are likely to vegetate, and, from being better protected, are less liable to injury.

Poppies (and when I use this name I mean that particular kind before specified) may be cultivated both by the drill and broad-cast mode of husbandry: at the same time it must be remembered, that the land for each requires a different disposition. In the former this is not so material, the sowing machine regulating the distances of the rows according to the will of the operator: these ought to be nine inches or a foot asunder, and in beds containing four rows, allowing a foot and a half between each. But, with respect to the latter, this point must be strictly attended to: the ridges should never exceed four feet in breadth; so that the furrows will answer the double purpose of preserving the land throughout the winter, and, in the season for collecting the opium, serve as paths to the workmen.

Besides two chances of a crop, I am decidedly in favour of autumnal sowing; and the first week in September seems to be the most favourable period for this purpose. If the weather continues open, they will make such a progress as to be capable of resisting the severity of an inclement winter, without, on the

other hand, being too forward; a circumstance highly dangerous, as the first severe frost is inevitably destructive.

On this account, whether by the drill or otherwise, a larger proportion of seed should be sown at this season, for the plants will defend each other; and as all the plants will not be equally forward, so, let the winter prove what it may, provided the seed has vegetated freely, there will be great probability of a good appearance in spring. If unfortunately, however, such a winter as the last should again occur, and the whole plantation fail, a circumstance which has happened to myself, the spring sowing ought not to be deferred longer than the first week in March.

I do not without sufficient reason recommend that this operation should be performed in autumn. The poppies are not only generally larger, but even, when this is not the case, I know from experience, that they will yield a much larger proportion of opium; for it seldom happens that a spring poppy will bleed, as we term it, more than twice, while the others will bear scarifying till they are nearly ripe. This, I imagine, can only arise from the length of time the one has been in the ground in comparison with the other. Indeed the difference is so striking, that if the present winter destroys my plants, I shall be almost tempted to dispose of my spring-sowing to other purposes. In drilling, the necessity of covering the seed by harrowing is suspended by the operation of the machine; and, in the broad-cast method, a shower of rain will have all the effect without further trouble or expense.

Excepting great additional care, turnip and poppy hoeing are similar, and in every respect may be conducted in the same manner. I believe the turnips are rather benefited, they certainly are not injured, by being shaken, and will recover from the effects of a wound; but if the poppies are accidentally touched, they will either exhaust themselves by bleeding, or dwindle so as to be of no value. But it is high time to proceed to the last point I proposed to consider, namely, the production and preparation of opium.

In ordinary seasons, the heads or capsules of the autumnal poppies will be large enough for our purpose in the month of June; for at this time they will have attained about half their growth, or to be equal in size to a small tea-cup. I have invented a variety of instruments as scarificators; but as only two

kinds were actually used, I am unwilling to trouble the Society with a description of any other *.

Seven and sometimes eight boys were employed, from eight to twelve years of age, together with a man as a superintendant. The children's book, which accompanies the instruments, contains only an account of six, as the eldest, being the son of my gardener, is included in another book. To the youngest I gave threepence per day, and, if tractable and well disposed, an additional penny for every additional year.

The steel instrument was used by the latter, and the others by the former. I have great reason to be satisfied with their construction; for, notwithstanding their simplicity, they proved themselves fully equal to my purpose; and so considerable a trial has not suggested any other improvement, than that in the largest the two inner bars only should be elastic; for the continual pressure of the finger and thumb on the two outer ones, which is absolutely necessary for the others to act, would be avoided, and consequently some fatigue and inconvenience prevented.

It is of very little consequence whether the first incisions are made horizontally or vertically with this instrument; for, however luxuriantly the milk may flow, by making four at one time,

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* Mr. Jones has since added the following description of the instruments, and their mode of application. They remain in the Society's repository.

The first of these instruments consists of two thin steel blades, fixed by a wedge in a wooden handle, so as to make incisions about one fourth of an inch from each other.

The other is made entirely of steel, and resembles in form the tuning-fork of a harpsichord. It consists of four bars, proceeding from a handle of a convenient length, a quarter of an inch wide, and two and a half long, each terminating with a bolster, through which a screw passes that fixes the scarificators. The centre bars should be so elastic as to yield to the curvature of the capsule, upon the outer ones being pressed by the finger and thumb; and by this means four incisions are made at once, at equal distances. This instrument is an inch and three quarters in width; but from the two outer blades, only an inch and a quarter. The bolsters are a quarter of an inch in diameter, and the scarificators a proportionate length, namely, three-eighths. The wedge in the former, and a longitudinal aperture in the scarificators, or blades, of the latter, will regulate the depths of the incisions at the will of the operator. It is of the utmost importance that these should not be made through the inner corner of the capsules.

it so divides the stream that seldom any escapes. With the smaller ones we most commonly made them horizontally, beginning as near the top of the head as possible; and for this reason all the juices, if the first incision was made at the bottom, would be naturally attracted by the aperture, and render every other completely fruitless, besides occasioning the certain loss of a considerable quantity, by falling on the surrounding leaves; whereas, on the other hand, a proportion of milk will exude from each, and the opium be equally distributed over the whole surface of the head.

No particular directions seem necessary for repeating this opetion, any further than that each time it should be performed in a contrary direction, and continued till no more will exude, at intervals of four or five days or more, according to circumstances: for, as the weather proves rainy or fair, they will be shorter or longer, the heads being sooner replenished in the one than the other.

Each of the children being provided with a tin cup, having one handle, so contrived as to fix itself to a girdle fastened round his waist, with a common gardening knife they scraped off the opium that appeared upon the heads in a soft ash-coloured substance. Dewy mornings are best calculated for this purpose, and it should be discontinued so soon as the sun has gained a sufficient power to dissipate it; for, if persevered in throughout the day, some of the opium will recede into the interstices, and more, in defiance of every endeavour, will remain upon the heads. The principal quantity exudes in the course of the night; and, uniting with the dew, it is taken off as readily and as completely as with a sponge.

Several regulations were adopted to excite, as much as possible, a spirit of emulation. The name of each boy was written upon his cup, so as to ascertain, on their return from collecting, who had been the most active. And although, in consequence of the unsettled state of the weather, this part of our process continued so long as from the 6th of July to the second week in September inclusive, the good effects were felt to the last. And as, for the reason already mentioned, an hour in the morning became so invaluable, those who appeared in the ground at five o'clock, at the most busy period, became entitled to an additional penny to their daily pay. This measure succeeded at first only with a few; but the remainder, overcome by shame,

at length attended equally well. In addition to this encouragement, I am under an engagement (in case I succeed with the society), to such whose behaviour has been uniformly good, to celebrate the circumstance by a public dinner.

The interval from breakfast time to sun-set, if the weather assumed a settled appearance, was occupied by scarifying. And here I again felt the good effects of stimulating measures: certain places were allotted to particular children, according to their ability, so as to discover who scarified the most and the best; the superintendant occasionally following all of them, to observe whether any work was left unfinished, and, if there were any, to complete it. If, in our progress, any one proved refractory, which happened in more instances than one, rather than have recourse to severity, and for the sake of example, he was immediately discharged. I had numerous applications, and the first on the list always had the preference as his successor.

Upon the whole, considering it was the first attempt of the kind, every thing proceeded very regularly; and had the summer been propitious, notwithstanding my former disappointments, I should have had great cause for satisfaction. The largest quantity that my man, seven children, and myself, were able to procure in one morning, from five to nine o'clock, was one pound and a half; this happened when the dew was remarkably great, and succeeded one of the warmest days in the summer.

As my notes furnish me with no further particulars, I have very little more to add. The opium, when first collected, from its union with the dew, is much too soft to be so formed as the Society has received it.

To reduce it to a proper consistence, taking nature for our guide, it should be thinly spread in shallow dishes, and exposed, under glasses, to the rays of the sun. My opinion is, that Turkey opium suffers considerably from the operation of fire; certain it is, that, with respect to its effluvia, it undergoes a complete alteration. I have covered it with its own leaves, thinking this a very convenient mode of package, and conceiving it to be important, in every new undertaking, by studying appearances, to yield to the general prejudices which naturally prevail in favour of the article to which we have been accustomed.

I have several times trespassed on the patience of the Society; on the present occasion I have again been seduced into prolixity. I hope they will receive the same apology now as before, know-

ing so well how acceptable every communication of this kind, though extended even to minuteness, is to the interested inquirer. To the utmost of my power I have complied with the requisition of the Society in class 175, in describing the mode of cultivating the poppies, and preparing my opium; and, in doing this, I can truly say that every thing which I have advanced is founded on the evidence of facts. I have been unwilling to indulge myself in mere speculation, being of opinion that a paper of such a description as the present would prove much more acceptable if confined to experiment alone.

Had it been necessary, I could have introduced a variety of quotations on this subject, describing the method of preparing opium in other countries; but surely this would have been foreign to the subject. The information which the Society and the public require, is what really has and may be done, as related in this paper. This information does not consist of vague evidence, collected from accounts of doubtful veracity, and of course more calculated to mislead than instruct; on the contrary, I have closely adhered to what I conceived to be the principal intention of the Society; have related nothing but what I actually saw; have confined myself to a bare recital of circumstances; and have only occasionally ventured to make deductions.

I acknowledge, with heartfelt pleasure, the repeated honours with which the Society has distinguished me; am not without hope, that this additional proof of perseverance and exertion will also receive its approbation. With the certificates I have inclosed a very flattering letter from Dr. Woodville, author of Medical Botany. It in a great measure proves, that if the practicability of preparing this inestimable medicine in this kingdom can be established, the opium itself possesses every quality that can be desired.

I remain, sir, your most obedient servant,

THOMAS JONES.

Sir, I called yesterday morning to examine the opium collected by you from the capsules of the white poppy; and I have no doubt, from its taste, smell, colour, and purity, but that it is more powerful and efficacious than the best foreign opium imported into this country.

The late Dr. Alston, when professor of botany and the materia medica in the university of Edinburgh, informed the public, more than sixty years ago (See Med. Essays, vol. v), that the milky juice, drawn by him from the heads of the white poppy, soon acquired the consistence of opium, when its taste, smell, faculties, &c. were the same as those of that drug.

In the year 1791 I convinced myself of the truth of his assertion, by repeating his experiments, which I noticed the following year in my Medical Botany. Soon after this time I appropriated a part of the garden at the Small-pox Hospital for the growth of the Papaver somniferum, from the green capsules of which were collected between two and three ounces of opium, which was found to be more efficacious than that of the exotic, as appeared upon trials of it made by several of my medical friends. But the great trouble and length of time required for the collection of the juice, induced me at that time to think that the manufacture of this valuable medicine in England did not hold forth any prospect of commercial advantage. However, since I have seen the great quantity of it collected under your direction, I sincerely hope that the above opinion will prove to be unfounded, and congratulate you on your success.

Your obedient servant,

W. WOODVILLE.

To the Society for the Encouragement of Arts, Manufactures, and Commerce.

I, William Duncan, of Philpot-lane, in the city of London, chemist and druggist, do hereby certify, that I have examined twenty-one pounds seven ounces of opium, made by Mr. Thomas Jones, of Fish-street Hill, from poppies grown on his plantation at Enfield; and I declare, that it appears to me to be as fine opium as the best I have ever seen in the course of my experience, for upwards of thirty years: and I further declare, that the whole of the said twenty-one pounds seven ounces is of equal quality with the five pounds sent herewith for the inspection of the said society.

WILLIAM DUNCAN.

To the Committee of the Society for the Encouragement of Arts, &c.

Gentlemen, agreeably to your request to the physicians of St. George's Hospital, conveyed in a letter of the 5th of May last, I, as one of that body, return you the result of the trials

made with the English opium, in a few cases under my care. [Then follow the cases.]

If a larger quantity of the drug, whose virtues were to be determined by experience, had been sent, more trials would have been made; but I have no doubt that the same effects, and by at least as small a dose, would have been produced by it as by the best foreign opium. I have the honour to be, gentlemen,

Your most obedient servant,

G. Pearson.

To the Committee of the Society for the Encouragement of Arts, &c.

Gentlemen, agreeably to your request, we have tried the opium you were so good as to send to the hospital, and am sorry, in the short time in which you desired an answer, that we have had only one case to give it a fair trial, namely, Elizabeth Spraughton, who has been several weeks under the care of Dr. Vaughan with a diseased state of stomach, and in whom we suspect a scirrhus of that viscus. She has been in the habit of taking one grain of opium every four or six hours, according to the violence of pain which she suffered. On the sixth of May she began with your English opium, made into pills of one grain each, and found as much relief as she used to do from the foreign opium. She has continued taking them ever since, and with the same effect.—I remain, gentlemen,

Your obedient humble servant,

G. E. Lawrence, Apothecary.

The Committee of Chemistry, to whose examination the English opium, prepared by Mr. Jones, was referred by the Society, ordered samples of the opium to be left with several eminent chemists for their analysis and judgement; in consequence of which, the following preparations were laid before the committee by those gentlemen, viz.

Extract of English opium, in proof spirit.

Hard extract of English opium.

Watery extract of English opium of the late dispensatory.

Tincture of English opium of the present pharmacopœia.

Tincture of English opium of the late dispensatory.

English opium powdered.

Similar preparations of fine foreign opium were produced in comparison.

From the general result of these experiments it appears, that

Mr. Jones's English opium is equal in quality to fine foreign opium; and the certainty of its growth in this country, preparation, and efficacy, fairly established.

Two kinds of opium are found in commerce, distinguished by the names of Turkey and East India opium.

Turkey opium is a solid compact substance, possessing a conderable degree of tenacity; when broken, having a shining fracture and uniform appearance; of a dark brown colour; when moistened, marking on paper a light brown interrupted streak, and becoming yellow when reduced to powder; scarcely colouring the saliva when chewed, exciting at first a nauseous bitter taste, which soon becomes acrid, with some degree of warmth; and having a peculiar heavy disagreeable smell. The best kind is in flat pieces, and besides the large leaves in which it is enveloped, is covered with the reddish capsules of a species of rumex, probably used in packing it. The round masses, which have none of these capsules adhering to them, are evidently inferior in quality. Opium is bad if it be soft, or friable, mixed with any impurities, have an intensely dark or blackish colour, a weak or empyreumatic smell, a sweetish taste, or draw upon paper a brown continued streak.

East Indian opium has much less consistence, being sometimes not much thicker than tar, and always ductile. Its colour is much darker; its taste more nauseous, and less bitter; and its smell rather empyreumatic. It is considerably cheaper than Turkish opium, and is supposed of only half the strength. One-eighth of the weight of the cakes is allowed for the enormous quantity of leaves with which they are enveloped. In the East Indies, when opium is not good enough to bring a certain price, it is destroyed under the inspection of officers.

Opium is not fusible, but is softened even by the heat of the fingers. It is highly inflammable. It is partially soluble, both in alcohol and in water. Neumann got from 1920 parts of opium, 1520 alcoholic, and afterwards 80 watery extract, 320 remaining undissolved; and inversely 1280 watery, and 200 alcoholic extract, the residuum being 440.

The solutions of opium are transparent, and have a brown or vinous colour. The watery solution is not decomposed by alcohol. A small quantity of matter, which, as far as my experiments go, is neither fusible nor remarkably inflammable, is se-

parated from the alcoholic solution by water. I have also observed that the watery solution of opium, or the alcoholic, after it has been precipitated by water, does not redden vegetable blues, is not precipitated by acids or alkalies, but is precipitated copiously by carbonate of potass, muriate and super-nitrate of mercury, oxymuriate of tin, sulphate of copper, sulphate of zinc, acetate of lead, nitrate of silver, and red sulphate of iron. The precipitate in the last case was of a dirty brown colour, not resembling those by alkaline or astringent substances. The solutions of opium, especially the watery, are also copiously precipitated by infusion of galls. This precipitate seems to resemble that produced by cinchonin, and to be different from that produced by gelatine.

The narcotic virtues of opium are imparted by distillation to alcohol and to water, and they are diminished, or entirely dissipated, by long boiling, roasting, or great age. The part of opium which is not soluble either in water or in alcohol, is albumen, according to Gren; caoutchouc, according to Buchholtz; a virulent glutinous substance, according to Josse; and Proust says it contains wax. From experiments made some years ago, I concluded that it was perfectly similar to the gluten of wheat flour, or fibrine. Long ago it was proposed to separate the resinous parts of opium by the same process that the fibrine of wheat flour is obtained. The fact is, that if Turkey opium be kneaded in a large quantity of water, the soluble parts are removed, and there remains in the hand an adhesive plastic mass, of a paler colour, not fusible, but becoming ductile when immersed in hot water, inflammable, imparting some colour to alcohol, but not soluble in it. East India opium, treated in the same way, is entirely dissolved or diffused in the water, and leaves no plastic mass in the hand.

Upon the whole, it appears that the active constituent of opium, though not perfectly understood, is of a volatile nature, but sometimes fixed by its combination with the other constituents; that it is soluble both in water and in alcohol; that it is dissipated in the processes recommended for purifying opium by solution and evaporation; and that the attempts made by some pharmaceutists, to obtain a preparation of opium which should possess only its sedative without its narcotic effects, only succeeded in so far as they diminished its activity.

By evaporating a watery solution of opium to the consistence

of a syrup, Derosne obtained a precipitate, which was increased by diluting it with water. He dissolved this in hot alcohol, from which it again separated on cooling. When purified by repeated solutions, it crystallized in rectangular prisms with rhomboidal bases, had no taste or smell, was insoluble in cold water, and soluble in 400 parts of boiling water, did not affect vegetable blues, was soluble in 24 parts boiling alcohol, and 110 cold; soluble in hot æther and volatile oils, and separated from them as they cooled; very soluble in all acids, and highly narcotic. These observations are curious, and the experiments deserve to be repeated.

MEDICAL USE.

The action of opium on the living system has been the subject of the keenest controversy. Some have asserted that it is a direct sedative, and that it produces no stimulant effects whatever; while others have asserted as strongly, that it is a powerful, and highly diffusible, stimulus, and that the sedative effects, which it undeniably produces, are merely the consequence of the previous excitement. The truth appears to be, that opium is capable of producing a certain degree of excitement, while the sedative effects which always succeed, are incomparably greater than could be produced by the preceding excitement. The stimulant effects are most apparent from small doses. These increase the energy of the mind, the frequency of the pulse, and the heat of the body, excite thirst, render the mouth dry and parched, and diminish all the secretions and excretions, except the cuticular discharge, which they increase. These effects are succeeded by languor and lassitude. In larger doses, the stimulant effects are not so apparent; but the excitability is remarkably diminished, and confusion of head, vertigo, and sleep, are produced. In excessive doses, it proves a violent narcotic poison, producing headach, vertigo, delirium, and convulsions, accompanied with a very slow pulse, stertorous breathing, and a remarkable degree of insensibility or stupor, terminated by apoplectic death. In one case, where I inspected the body after death, the inner membrane of the stomach was remarkably corrugated, and with some inflammation; but as large doses of sulphate of zinc and flour of mustard had been also taken, no inference can be drawn from these appearances. The bad effects of an over-dose of opium are often prevented by the occurrence of vomiting, and they are best counteracted by making the patient drink freely of acids

and coffee, and not permitting him to yield to his desire of sleeping. By habit, the effects of opium on the body are remarkably diminished. There have been instances of four grains proving fatal to adults, while others have been known to consume as many drachms daily. The habitual use of opium produces the same effects with habitual dram drinking—tremors, paralysis, stupidity, and general emaciation, and, like it, can scarcely ever be relinquished.

In disease, opium is chiefly employed to mitigate pain, diminish morbid sensibility, procure sleep, allay inordinate actions, and to check diarrhœas and other excessive discharges. It is contraindicated in gastric affections, plethora, a highly inflammatory state of the body, and determination of the blood to particular viscera.

In intermittents, it is said to have been used with good effect in every stage. Given even in the hot stage, it has been observed to allay the heat, thirst, headach, and delirium, to induce sweat and sleep, to cure the disease with less bark, and without leaving abdominal obstructions or dropsy.

In fevers of the typhoid type, accompanied with watchfulness or diarrhœa, it is extremely useful; but when not indicated by particular symptoms, it does harm, by augmenting thirst and producing constipation.

Especially when combined with calomel, it has lately been much employed in inflammations from local causes, such as wounds, fractures, burns, absorption of morbid poisons, as in swelled testicle, &c.; and even in active inflammations, accompanied with watchfulness, pain, and spasm, after blood-letting.

In small-pox, when the convulsions before eruption are frequent and considerable, or when the accompanying fever is of the typhoid type, opium is liberally used. It is likewise given from the fifth day onwards; and is found to allay the pain of suppuration, to promote the ptyalism, and to be otherwise useful.

In dysentery, after the use of gentle laxatives, or along with them, opium, independently of any effect it may have on the fever, is of consequence in allaying the tormina and tenesmus, and in obviating that laxity of bowels which so frequently remains after that disease.

In diarrhœa, the disease itself generally carries off any offending acrimony, and then opium is used with great effect. Even in the worst symptomatic cases, it seldom fails to alleviate.

In cholera and pyrosis, it is almost the only thing trusted to.

In colic, it is employed with laxatives; and often prevents ileus and inflammation, by relieving the spasm. Even in ileus it is sometimes used to allay the vomiting, the spasms, and the pain.

It is given to allay the pain and favour the descent of calculi, and to give relief in jaundice and dysuria proceeding from spasm.

It is of acknowledged use in the different species of tetanus; affords relief to the various spasmodic symptoms of dyspepsia, hysteria, hypochondriasis, asthma, rabies canina, &c., and has been found useful in some kinds of epilepsy.

In syphilis it is only useful in combating symptoms, and in counteracting the effects resulting from the improper use of mercury, for it possesses no power of overcoming the venereal virus.

It is found useful in certain cases of threatened abortion and lingering delivery, in convulsions during parturition, and in the after-pains and excessive flooding.

The administration of opium to the unaccustomed is sometimes very difficult. The requisite quantity is wonderfully different in different persons, and in different states of the same person. A quarter of a grain will in one adult produce effects which ten times the quantity will not do in another; and a dose that might prove fatal in cholera or colic, would not be perceptible in many cases of tetanus or mania. When given in too small a dose, it is apt to produce disturbed sleep, and other disagreeable consequences; but sometimes a small dose has the desired effect, while a larger one gives rise to vertigo and delirium, and with some constitutions it does not agree in any dose or form. Its stimulant effects are most certainly produced by the repetition of small doses, its anodyne by the giving of a full dose at once. In some it seems not to have its proper effect till after a considerable time. The operation of a moderate dose is supposed to last in general about eight hours from the time of taking it.

Externally, opium is used to diminish pain, and to remove spasmodic affections. It is found particularly serviceable in chronic ophthalmia, when accompanied with morbidly increased sensibility.

Opium may be exhibited,

1. In substance, made up in the form of a pill, lozenge, or electuary. Its most efficient form.
2. Dissolved in diluted alcohol, or white wine.

3. Dissolved in water, or watery fluids. Very perishable.
4. Dried and reduced to powder.

It is often given in combination with aromatics, astringents, emetics, bitters, camphor, soap, distilled waters, mucilage, syrups, acids, carbonate of ammonia, æther, acetate of lead, tartrate of antimony and potass, and unctuous substances. Some of these are certainly unchemical mixtures; for I find by experiment that the solutions of opium are copiously precipitated by astringents, the alkaline carbonates, and all the metallic salts.

PREPARATIONS.

Purified Opium. (Opium Purificatum. L. D.)

Take of opium, cut into small pieces, one pound;
——— proof spirit of wine, twelve pints:
Digest the opium with a gentle heat, stirring now and then till it be dissolved, and filter through paper. (Distil the tincture, so prepared, to a proper thickness, L.) (Distil in a retort until the spirit be separated: pour out the liquor which remains, and evaporate, until the extract acquires a proper thickness, D.)

Purified opium must be kept in two forms; one soft, proper for forming into pills; the other hard, which may be reduced into powder. A pill of half a grain usually produces sleep at night.

Tincture of Opium, or Thebaic Tincture, commonly called Liquid Laudanum. (Tinctura Opii, sive Thebaica, vulgo Laudanum Liquidum. E.)

Take of opium, two ounces;
——— diluted alcohol, two pounds:
Digest for seven days, and filter through paper.

Lond. Dub.

Take of hard purified opium, powdered, ten drachms;
——— proof spirit of wine, one pint:
Digest for ten (seven, D.) days, and strain.

As these tinctures, on evaporation, furnish the same quantity of extract, they are believed to be of nearly equal strength; but it is to be regretted that they are not so well adapted for keeping as could be wished: after some time, a part of the opium is gradually deposited from both, and consequently the tinctures become weaker: the part which thus separates, amounts sometimes, it is said, to near one-fourth of the quantity of opium at first dissolved. The dose is commonly twenty-five drops at bed-time to procure sleep.

Ammoniated Tincture of Opium, formerly Paregoric Elixir. (Tinctura Opii Ammoniata, olim Elixir Paregoricum. E.)

Take of benzoic acid,
——— English saffron, sliced, of each three drachms;
——— opium, two drachms;
——— volatile oil of aniseed, half a drachm;
——— ammoniated alcohol, sixteen ounces:
Digest for seven days, in a close vessel, and filter through paper.

This is a preparation of considerable efficacy in many spasmodic diseases, as chincough, &c., the ammonia removing the spasm immediately, while the opium tends to prevent its return. Each drachm contains about a grain of opium. The dose is from twenty to thirty drops.

Pills of Opium. (Pilulæ Opii. L.)

Take of hard purified opium, powdered, two drachms;
——— extract of liquorice, one ounce:
Beat them until they are perfectly united. The dose is five grains at bed-time to procure sleep.

Watery Extract of Opium. (Extractum Opii Aquosum. D.)

Take of opium, two ounces;
——— boiling water, one pint:
Triturate the opium well in the water for ten minutes; then, after waiting a little, pour off the liquor, and triturate the remaining opium with the same quantity of boiling water, pouring off the infusion in the same manner. This may be repeated a third time. Mix the decanted liquors, and expose the mixture in an open vessel, for two days, to the air. Lastly, filter through linen, and, by slow evaporation, form an extract. The dose is one grain.

Opiate Powder. (Pulvis Opiatus. L.)

Take of hard purified opium, powdered, one drachm;
——— burnt and prepared hartshorn, nine drachms:
Mix them.

Edin.

Take of opium, one part;
——— prepared carbonate of lime, nine parts:
Rub them together to a fine powder.

In these powders the opium is the active ingredient, and it is immaterial whether the phosphate or carbonate of lime be used to facilitate its mechanical division.

Opiate Electuary, commonly called Thebaic Electuary.

(Electuarium Opiatum, olim Electuarium Thebaicum. E.)

Take of aromatic powder, six ounces;
——— Virginian snake-root, in fine powder, three ounces;
——— opium, diffused in a sufficient quantity of Spanish white wine, half an ounce;
——— syrup of ginger, one pound:
Mix them, and form an electuary.

Confection of Opium. (Confectio Opiata. L.)

Take of hard purified opium, powdered, six drachms;
——— long pepper,
——— ginger,
——— caraway seeds, of each two ounces;
——— syrup of white poppy, boiled to the consistence of honey, three times the weight of the whole:
Mix the purified opium with the syrup heated; then add the other ingredients rubbed to powder.

The action which these electuaries will produce on the living system is abundantly apparent from the nature of their ingredients. They are combinations of aromatics with opium; one grain of opium being contained in thirty-six of the London confection, and in forty-three of the Edinburgh electuary.

Liquorice Troches with Opium. (Trochisci Glycyrrhizæ cum Opio. E.)

Take of opium, two drachms;
——— tincture of Tolu, half an ounce;
——— common syrup, eight ounces;
——— extract of liquorice, softened in warm water,
——— gum arabic, in powder, of each five ounces:
Triturate the opium well with the tincture, then add by degrees the syrup and extract; afterwards gradually mix in the powdered gum arabic. Lastly, dry them so as to form a mass, to be divided into troches, each weighing ten grains.

These directions for preparing the above troches are so full and particular, that no further explanation is necessary; seven and a half contain about one grain of opium. These troches are medicines of approved efficacy in tickling coughs depending on irritation of the fauces. Besides the mechanical effect of the viscid matters in involving acrid humours, or lining and defending the tender membranes, the opium no doubt must have a considerable effect, by more immediately diminishing the irritability of the parts themselves. One of these is to be occasionally taken during the day to allay a tickling irritation in the throat.

TABLE

Showing the Proportion of Opium in some Compound Medicines.

Opiate confection contains one grain of opium in thirty-six grains. L.

Opiate or Thebaic electuary contains in each drachm about a grain and a half of opium. E.

Electuary of catechu, or Japonic confection, contains in each ounce about two grains and a half of opium; for one grain of opium is contained in 193 grains. E.

Compound electuary of catechu contains in each ounce about two grains and a half of purified opium. D.

Compound powder of chalk with opium contains one grain of opium in about forty-three grains. L.

Compound powder of ipecacuana contains one grain of opium in ten grains. L. D.

Powder of ipecacuana and opium contains six grains of opium in each drachm, or one in ten. E.

Opiate powder contains one grain of opium in ten. L.

Pills of opium contain one grain of opium in five. L.

Opiate or Thebaic pills contain six grains of opium in each drachm, or five grains contain half a grain of opium. E.

Pills of storax, in five grains of the mass, contain one grain of purified opium. D.

Tincture of opium or liquid laudanum is made with two scruples of opium in each ounce of the liquid, or with five grains in each drachm; but a drachm of the tincture appears, by evaporation, to contain about three grains and a half of opium. E.

Tincture of opium contains, in a drachm measure, about four grains and a half of purified opium. D.

Camphorated tincture of opium contains in four drachms and a half, by measure, one grain of purified opium. D.

Ammoniated tincture of opium, or paregoric elixir, is made with about eight grains in each ounce of the liquid, or with about one grain in the drachm. E.

Syrup of opium contains in an ounce measure about a grain of the watery extract of opium; for the liquor, by the addition of the sugar, is more than doubled in bulk. D.

Tincture of soap and opium, formerly called opiate liniment, anodyne balsam, is made with one scruple of opium in each ounce of the liquid. E.

Troches of liquorice with opium contain about one grain of opium in each drachm. E.

PRESCRIPTIONS.

℞. 1. Take of purified opium - - - - scruple 1,
——— soap - - - - - - - - scruples 2,
——— essential oil of cinnamon - drops 2:
Soften the opium first with a little wine, then mix well with the rest. The dose is one pill, to be taken at bed-time to procure sleep.

℞. 2. Take of purified opium - - - grains 3,
——— purified storax - - - grains 8,
——— aromatic powder - - grains 4:
——— syrup of Tolu, as much as is sufficient:
Make into seven pills. Take two at bed-time.

℞. 3. Take of pills of opium - - - grains 15;
Make into four pills. Give one at bed-time, and, if that in an hour does not procure sleep, give another, and, if this produces no effect, in half an hour repeat a third, or even the fourth.

℞. 4. Take of tincture of opium (laudanum), drops 25,
——— cinnamon water - - - - ounce 1,
——— syrup of Tolu - - - - drachms 2:
Make into a night draught.

℞. 5. Take of tincture of opium - - - drachms 2,
——— decoction of barley - - ounces 8:
Make a glyster to be thrown up. To stop diarrhœa, and remove spasm.

℞. 6. Take of tincture of opium - - drops 15,
——— chalk mixture - - - ounces 6,
——— cinnamon water - - - ounce 1:

Make into a mixture, of which take a large table-spoonful every six hours. Given to stop a looseness.

℞. 7. Take of powder of rhubarb - - - - grains 10,
——— powder of chalk with opium - scruple 1,
——— powder of chalk without opium, drachm 1:
Make into four papers, of which take one, night and morning.

℞. 8. Take of tincture of opium - - - drops 20,
——— chalk mixture - - - - ounces $4\frac{1}{2}$,
——— tincture of cinnamon - - ounce $\frac{1}{2}$,
——— cinnamon water - - - ounces 2:
Make a mixture, of which take two table-spoonfuls after every liquid motion. Given in diarrhœa, and the looseness often attendant upon consumption.

℞. 9. Take of tincture of opium - drachms 2,
——— vitriolated zinc - - grains 8,
——— rose water - - - - ounces 4:
Take two tea-spoonfuls in a wine glass of weak chamomile tea every four hours. Ordered in diarrhœa.

℞. 10. Take two poppy heads,
Boil them in a quart of milk, and use this as a fomentation. Excellent in inflamed eyes, used also to relieve the pain of inflammation from a blister or other cause.

CORN POPPY.

PAPAVER RHÆAS.

Class XIII. Polyandria. *Order* I. Monogynia.

Essent. Gen. Char. The same as the last.

Spec. Char. *Capsule* smooth, globular: *Stem* hairy, many-flowered: *Leaves* pinnatifid, gashed.

DESCRIPTION.

The stalk is upright, branched, having hairs standing at right angles; rises two feet. Leaves pinnate. Peduncles slender, long, hairy, carrying a single flower. Calyx drooping, falls. Petals a bright scarlet, four. Stigma radiated.

HISTORY.

Common in corn-fields, flowers in June and July.

PREPARATIONS.

Syrup of White Poppies. (Syrupus Papaveris Somniferi. E.)

Take of white poppy-heads, dried, and freed from the seeds, two pounds;
——— boiling water, thirty pounds;
——— double refined sugar, four pounds:

Macerate the sliced heads in the water for twelve hours: boil the infusion till only one-third part of the liquor remain; then strain the decoction with strong expression. Boil the strained decoction to the consumption of one-half, and strain again; lastly, add the sugar, and boil a little, so as to form a syrup.

Syrup of White Poppies. (Syrupus Papaveris Albi. L.)

Take of the heads of white poppies, dried, three pounds and a half;
——— double refined sugar, six pounds;
——— distilled water, eight gallons:

Slice and bruise the heads, then boil them in the water to three gallons, in a water bath, saturated with sea salt, and press out the decoction. Reduce this, by boiling, to about four pints, and strain it, while hot, through a sieve, then through a thin woollen cloth, and set it aside for twelve hours that the fæces may subside. Boil the liquor poured off from the fæces to three pints, and dissolve the sugar in it, that it may be made a syrup.

Dub.

Take of white poppy-heads, gathered unripe, dried, and emptied of their seeds, one pound;
——— boiling water, three pints:

Slice and bruise the heads, then pour on the water, and macerate for twelve hours; express the liquor, and evaporate in a moderate heat to one pint; strain through thin flannel, and set aside for six hours to allow the fæces to subside: to the decanted liquor add the sugar, and make into a syrup.

This syrup, impregnated with the narcotic matter of the poppy-heads, is given to children, in doses of two or three drachms, and to adults, of half an ounce to an ounce and upwards, for easing pain, procuring rest, and answering the other intentions of mild opiates. Particular care is requisite in its preparation, that it may be always made, as nearly as possible, of the same strength; and accordingly the Colleges have been very minute in their description of the process.

Syrup of Red Poppies. (Syrupus Papaveris Erratici. L. D.)

Take of the fresh flowers of the red poppy, four pounds (one pound, D.);
——— boiling distilled water, four pints and a half (twenty ounces, by measure, D.):

Put the flowers, by degrees, into the boiling water, in a water bath, constantly stirring them. After this, the vessel being taken out of the bath, macerate for twelve hours; then press out the liquor, and set it apart, that the fæces may subside. Lastly, make it into a syrup with double refined sugar.

The design of putting the flowers into boiling water in a water bath is, that they may be a little scalded, so as to shrink enough to be all immerged in the water; without this precaution they can scarce be all got in: but they are to be continued no longer over the fire than till this effect is produced, lest the liquor become too thick, and the syrup be rendered ropy.

As a medicine, it has little power.

The dose of this syrup is half an ounce to an ounce. The red syrup is often used to colour medicines, and given to infants in the dose of a tea-spoonful.

PRESCRIPTION.

℞. Take of syrup of red poppies - drachms 2,
——— tincture of opium - - drops 20,
——— cinnamon water - - ounce 1,
——— rose water - - - - drachms 4:
Make into a draught, to be taken at bed-time.

CLOVE TREE.

CARYOPHYLLUS AROMATICUS.

Class XIII. Polyandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* four-petalled: *Calyx* four-leaved: *Berry* one-seeded, beneath.

SPEC. CHAR. *Leaves* ovate-lanceolate, opposite: *Flowers* terminal.

DESCRIPTION.

THIS is not a lofty tree, and divides into large branches. The leaves are large, entire, and stand upon short footstalks. The flowers terminate the branches. The colour of the petals is blue. The pericarp is one-celled, umbilicated, and terminated by the indurated converging calyx. The seed is a large oval berry.

HISTORY.

Cloves yield by distillation with water about one seventh of their weight of volatile oil; 960 parts also gave to Neumann 380

of a nauseous, somewhat astringent, watery extract. The same quantity gave only 300 of excessively fiery alcoholic extract. When the alcoholic extract is freed from the volatile oil by distillation with water, the oil that arises proves mild, and the resin that remains insipid. Its pungency, therefore, seems to depend on the combination of these principles. The Dutch oil of cloves is extremely hot and fiery, and of a reddish brown colour; but it is greatly adulterated, both with fixed oils and resin of cloves; for the genuine oil when recently distilled is comparatively quite mild and colourless, although it gradually acquires a yellow colour. It is heavier than water, and rises in distillation with some difficulty; so that it is proper to use a very low-headed still, and to return the distilled water several times upon the residuum.

MEDICAL USE.

Cloves, considered as medicines, are very hot stimulating aromatics, and possess in an eminent degree the general virtues of substances of this class.

CRETAN CISTUS.

CISTUS CRETICUS.

Class XIII. Polyandria. *Order* I. Monogynia.

Essent. Gen. Char. *Corolla* five-petalled: *Calyx* five-leaved, two of these leaves smaller: a *Capsule*.

Spec. Char. Arborescent, without stipules: *Leaves* spatulate-ovate, wrinkled, and rough with veins, petioled: *Calyx* leaves lanceolate.

DESCRIPTION.

This is a most beautiful shrub, filled with branches. The leaves are oblong, pointed, veined, rough, viscous, in pairs, upon short footstalks, broad at the base. The flowers appear in succession at the end of the branches in June and July, are of a light red, marked with a dark spot at the end of each petal.

HISTORY.

This is a perennial shrub, which grows in Syria, and more especially in the Grecian islands. The resin is said to have been formerly collected from the beards of goats which browsed the leaves of the cistus: at present a kind of rake, with several straps

or thongs of skins fixed to it, is drawn lightly over the shrub, so as to take up the unctuous juice, which is afterwards scraped off with knives. It is rarely met with pure, even in the places where it is produced; the dust, blown upon the plant by the wind, mingling with the viscid juice, and the inhabitants also being said to mix it with a certain black sand. In the shops two sorts are met with: the best (which is very rare) is in dark-coloured, almost black, masses, of the consistence of a soft plaster, which grows still softer upon being handled; of a very agreeable smell, and of a light, pungent, bitterish, taste: the other sort is harder, not so dark-coloured, in long rolls coiled up: this is of a much weaker smell than the first, and has a larger admixture of a fine sand, which in the ladanum examined by the French Academy made up three-fourths of the mass; and that found in the shops seems even more sandy. What Neumann examined, however, gave him 5400 alcoholic, and 480 watery; and inversely, 960 watery, and 4960 alcoholic extract, from 7680 parts. In distillation water carries over a volatile oil, and alcohol distilled from it becomes milky on the addition of water.

PREPARATIONS.

Compound Burgundy Pitch Plaster. (Emplastrum Picis Burgundicæ Compositum. L.)

Take of Burgundy pitch, two pounds;
——— ladanum, one pound;
——— yellow resin,
——— yellow wax, of each four ounces;
——— expressed oil of mace, one ounce:
To the pitch, resin, and wax, melted together, add first the ladanum, and then the oil of mace.

Compound Ladanum Plaster. (Emplastrum Ladani Compositum. L.)

Take of ladanum, three ounces;
——— frankincense, one ounce;
——— cinnamon, powdered,
——— expressed oil of mace, of each half an ounce;
——— essential oil of mint, one drachm:
To the melted frankincense add first the ladanum, softened by heat, then the oil of mace. Mix these afterwards with the cinnamon and oil of mint, and beat them together, in a warm mortar, into a plaster. Let it be kept in a close vessel.

This has been considered as a very elegant stomach plaster. It is contrived so as to be easily made occasionally (for these kinds of compositions, on account of their volatile ingredients, are not fit for keeping), and to be but moderately adhesive, so as not to offend the skin, and that it may, without difficulty, be frequently renewed; which these sorts of applications, in order to their producing any considerable effect, require to be. They keep up a perspiration over the part affected, and create a local action, which diverts inflammation. Consumption from colds in delicate habits is by such means frequently obviated. After a long continued cough in the winter a Burgundy pitch plaster should be put over the breast-bone.

GREATER CELANDINE.

CHELIDONIUM MAJUS.

Class XIII. Polyandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Corolla* four-petalled: *Calyx* two-leaved: *Siliqua* one-celled, linear.

SPEC. CHAR. *Peduncles* in an umbel.

DESCRIPTION.

RISES from one to two feet. Leaves pinnated, terminal pinnæ large, lobed; margin deeply scolloped. Flowers yellow, in small umbels. Germen long, cylindrical, bent.

HISTORY.

Grows wild in uncultivated spots, flowering most part of the year.

MEDICAL USE.

The juice which distils upon breaking this plant is yellow, and has much acrimony, as such it has been employed to eat away warts, and mixed with hog's lard as an escharotic; also to eat away opacities in the cornea: mixed with water it has been used as an eye water, and taken internally in obstructions of the liver. Linnæus reports, that a tea-spoonful of the juice given four times a day in water has cured an intermittent.

COMMON PEONY.

PÆONIA OFFICINALIS.

Class XIII. Polyandria. *Order* II. Digynia.

ESSENT. GEN. CHAR. *Calyx* five-leaved: *Petals* five: *Styles* none: *Capsule* many-seeded.

SPEC. CHAR. *Leaves* oblong.

DESCRIPTION.

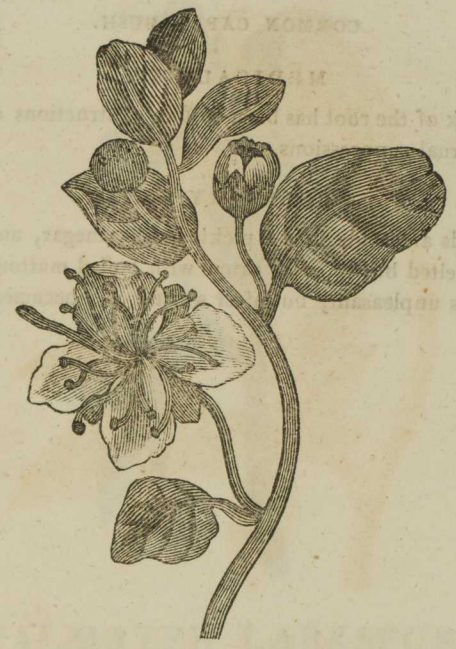
THE stalk rises two feet. Leaves cut into lobes, which are oblong, or, if pinnated, terminated by an odd pinna. Capsules two, oblong, hirsute, crowned with a stigma.

HISTORY.

Native of Switzerland, common in our gardens, which it embellishes with its fine pompadour flowers in May and June.

MEDICAL VIRTUE.

The famous Willis recommends the root to be given in the form of a powder, a drachm three or four times a day, which he affirms to have cured both infants and adults labouring under epilepsy. Home gave this root to two persons suffering under that disease in the Edinburgh Infirmary, and he declares that one of them received a temporary advantage from its use.



COMMON CAPER BUSH.

CAPPARIS SPINOSA.

Class XIII. Polyandria. *Order* I. Monogynia.

ESSENT. GEN. CHAR. *Calyx* four-leaved, coriaceous: *Petals* four: *Stamina* long: *Berry* leathery, one-celled, pedunculate.

SPEC. CHAR. *Peduncles* solitary, one-flowered: *Stipules* spiny: *Leaves* deciduous: *Capsules* oval.

DESCRIPTION.

LEAVES alternate, on short footstalks, oval, veiny, succulent, of a bright green. Flowers numerous, axillary, on long peduncles, white, with a faint blush of red. Petals waved. Filaments conspicuous, of a pale purple: anthers the same. Germen standing upon a round purple footstalk, having the appearance of a style.

HISTORY.

Native of the south of France, Italy, and the Levant.

MEDICAL USE.

The bark of the root has been used in obstructions of the liver and menstrual suppressions.

CULINARY USE.

The buds are made into a pickle with vinegar, and chopped up with melted butter, and eaten with boiled mutton. At first the taste is unpleasant, but after a little use becomes extremely agreeable.

PALMATED LARKSPUR.

DELPHINIUM STAPHISAGRIA.

Class XIII. Polyandria. *Order* III. Trigynia.

Essent. Gen. Char. *Calyx* none: *Petals* five: *Nectary* bifid, behind cornuted: *Siliquæ* three, or five.

Spec. Char. *Nectaries* three-leaved, shorter than the petal: *Leaves* palmated, lobes obtuse.

DESCRIPTION.

Rises two or three feet. Leaves palmated, divided into five or seven lobes, which are ovate or lance-shaped, on very long peduncles below, shorter above, giving a conical shape to the whole plant. Flowers blue or purple.

HISTORY.

Stavesacre is a biennial plant, a native of the south of Europe. The seeds are usually brought from Italy. They are large and rough, of an irregular triangular figure, of a blackish colour on the outside, and yellowish or whitish within; they

have a disagreeable smell, and a very nauseous, bitterish, burning taste.

Neumann got from 480 parts, 45 alcoholic extract, besides 90 of fixed oil, which separated during the process, and afterwards 44 insipid watery; and inversely, 95 watery, and then by alcohol only one, besides 71 of oil.

MEDICAL USE.

Stavesacre was employed by the ancients as a cathartic; but it operates with so much violence both upwards and downwards, that its internal use has been for some time almost laid aside. It is chiefly employed in external applications for some kinds of cutaneous eruptions, and for destroying lice and other insects; insomuch that from this virtue it has received its name in different languages. The fine powder is put into the hair each night, and combed out the following morning. It is safe, and much used after a long sickness.

WOLF'S-BANE, OR MONK'S-HOOD.

ACONITUM NAPELLUS.

Class XIII. Polyandria. *Order* III. Trigynia.

ESSENT. GEN. CHAR. *Calyx* none: *Petals* five, the upper arched: *Nectaries* two, pedunculate, recurved: *Siliquæ* three or five.

SPEC. CHAR. *Peduncles* aggregate, terminal: *Pistils* four.

DESCRIPTION.

THIS grows from two to five feet, erect. The leaves are lobed, deeply laciniated, standing alternate upon long footstalks; upper leaves almost sessile, the laciniæ broader than the under: the superior surface of the leaf a deep green, the under whitish. Flowers numerous, terminal, of a deep purple. The upper petal helmet-shaped, or hood-like.

HISTORY.

It is a perennial plant, found in the alpine forests of Carinthia, Carniola, and other mountainous countries in Germany, and cultivated in our gardens.

The fresh plant and root are very violent poisons, producing remarkable debility, paralysis of the limbs, convulsive motions of the face, bilious vomiting, and catharsis, vertigo, delirium, asphyxia, death. The fresh leaves have very little smell, but when chewed have an acrid taste, and excite lancinating pains, and swelling of the tongue. By drying, its acrimony is almost entirely destroyed. For medical use, the plant must be gathered before the stem shoots.

MEDICAL USE.

When properly administered, it acts as a penetrating stimulus, and generally excites sweat, and sometimes an increased discharge of urine.

On many occasions it has been found a very effectual remedy in glaudular swellings, venereal nodes, spina ventosa, amaurosis, gouty and rheumatic pains, intermittent fevers, and convulsive disorders.

We may begin by giving one or two grains of the dried leaves in powder, but it is commonly used in the form of an inspissated juice. As soon as the plant is gathered, the juice is expressed and evaporated without any previous clarification, to the consistence of an extract. It is to be regretted that the powers of this medicine vary very much, according to its age, and the heat employed in its preparation. When recently prepared, its action is often too violent; and when kept more than a year, it becomes totally inert. It may therefore be laid down as an universal rule in the employment of this and of many other similar active medicines, to begin with very small doses, and to increase them gradually to the necessary degree; and whenever we have occasion to begin a new parcel of the medicine, we should again commence with the smallest dose, and proceed with the same caution as at first.

We may begin by giving half a grain of this extract, either formed into a powder with ten grains of white sugar, or made up with any convenient addition into a pill, twice or thrice a day, and gradually increase the dose: or a tincture of aconite may be prepared by digesting one part of the dried leaves in six

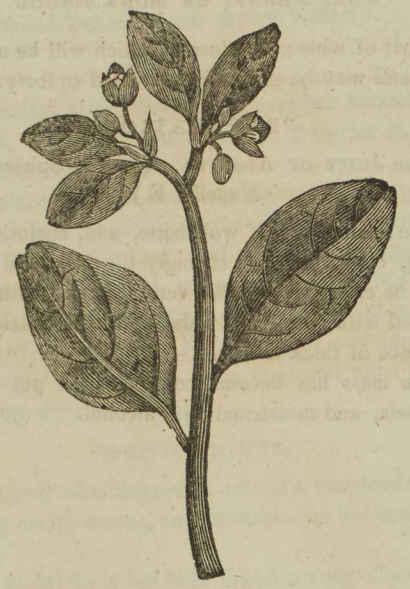
parts of spirit of wine; the dose of which will be at first five or ten drops, and may be gradually increased to forty.

PREPARATION.

Inspissated Juice of Aconite. (Succus Spissatus Aconiti Napelli. E.)

Bruise the fresh leaves of wolfsbane, and, enclosing them in a hempen bag, compress them strongly till they yield their juice, which is to be evaporated in flat vessels heated with boiling water, saturated with muriate of soda, and immediately reduced to the consistence of thick honey.

After the mass has become cold, let it be put up in glazed earthen vessels, and moistened with alcohol.



WINTER'S BARK TREE.

WINTERA AROMATICA.

Class XIII. Polyandria. *Order* IV. Tetragynia.

ESSENT. GEN. CHAR. *Calyx* three-lobed: *Petals* six or twelve: *Germen* clavate: *Styles* none: *Berry* clavate.

SPEC. CHAR. *Peduncles* aggregate, terminal: *Pistils* four.

DESCRIPTION.

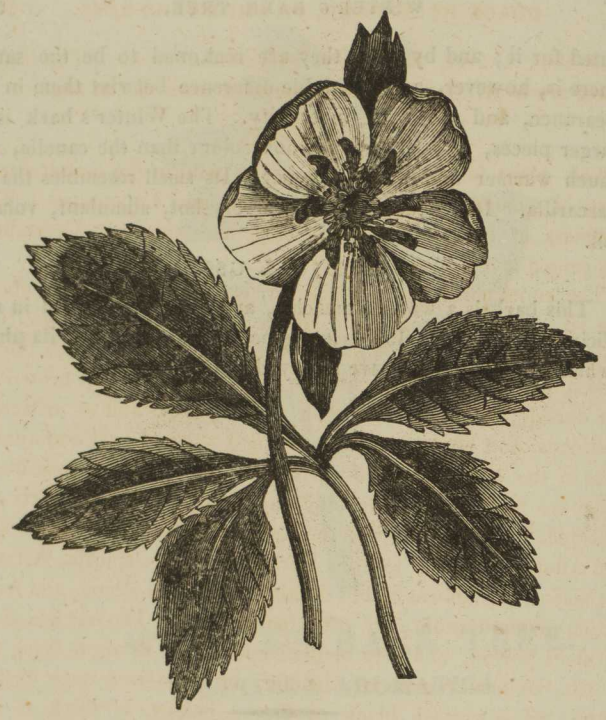
A TREE rising often fifty feet. Leaves oval or elliptical, entire, obtuse, flat, shining, of a pale blue underneath, irregularly placed upon thick peduncles. Calyx thick, fleshy. Corolla petals white, small. Germen turbinate.

HISTORY.

This is the produce of a tree first discovered on the coast of Magellan by captain Winter in the year 1567. The sailors then employed the bark as a spice, and afterwards found it serviceable in the scurvy; for which purpose it is at present also sometimes made use of in diet drinks. The true Winter's bark is not often met with in the shops, canella alba being generally substituted for it; and by some they are reckoned to be the same: there is, however, a considerable difference betwixt them in appearance, and a greater in quality. The Winter's bark is in larger pieces, of a more cinnamon colour than the canella, and much warmer and more pungent. Its smell resembles that of cascarilla. Its virtues reside in a very hot, stimulant, volatile oil.

MEDICAL USE.

This bark is a warm stomachic, and but little applied in medicine, the canella alba being generally substituted in its place, which is supposed to have nearly the same virtues.



BLACK HELLEBORE,
OR
CHRISTMAS ROSE.
HELLEBORUS NIGER.

Class XIII. Polyandria. *Order* VI. Polygynia.

ESSENT. GEN. CHAR. *Calyx* none: *Petals* five, or more: *Nectary* bilabiate, tubular: *Capsule* many-seeded, rather erect.

SPEC. CHAR. *Scape* one- or two-flowered, nearly naked: *Leaves* pedate.

DESCRIPTION.

THE scape or flowerstalk is erect, and proceeds from a bractea, or rather involucrum. The flowers are white, at first conspicuous, afterwards turn green. The nectaries are eight, tubular, and bilabiate, of a green colour. The germina vary from four to eight. The leaves are compound, divided in a peculiar manner

resembling a foot, fixed upon radical footstalks. The simple leaves are oval, smooth, thick, serrated towards the top.

HISTORY.

This plant is perennial, and grows wild in the mountainous parts of Austria, and on the Pyrennees and Appennines. The earliness of its flowers, which sometimes appear in December, has gained it a place in our gardens.

The roots consist of a black furrowed roundish head, about the size of a nutmeg, from which short articulated branches arise, sending out numerous corrugated fibres, about the thickness of a straw, from a span to a foot in length, deep brown on the outside, white or yellowish white within, and of an acrid, nauseous, and bitterish taste, exciting a sense of heat and numbness in the tongue, and of a nauseous acrid smell. These fibres only are used in medicine, and the head and decayed parts are rejected. For the roots of the real black hellebore, the roots of the Adonis vernalis, Trollius Europæus, Actæa spicata, Astrantia major, Helleborus viridis fœtidus, Veratrum album, and Aconitum neomontanum, are often substituted. The last is a most virulent poison, and may be distinguished by its roots being fusiform, or nearly globular, sending out numerous very brittle fibres, of a grayish black or brown colour, as thick as the finger, and repeatedly divided. But the surest way to avoid mistakes, is by the apothecary cultivating the plant itself in his own garden.

Neumann got from 2880 grains, 380 alcoholic, and 181 watery extract; and inversely, 362 watery, and 181 alcoholic. Its active constituent seems to be of a volatile nature; for it loses its virtues by keeping, and water distilled from it has an acrid taste.

MEDICAL USE.

In large doses, hellebore is a drastic purgative; in smaller doses, it is diuretic and emmenagogue. It is principally used as a purgative in cases of mania, melancholy, coma, dropsy, worms, and psora, and as an emmenagogue. But its use requires very great caution, for its effects are very uncertain, and affected by many circumstances.

It is commonly exhibited in the form of extract, although its activity be much dissipated by the preparation. An infusion and tincture certainly promise to be medicines of more uniform powers.

PREPARATION.

TINCTURE OF BLACK HELLEBORE. (Tinctura Hellebori Nigri. L. D. E.)

Take of black hellebore, in coarse powder, four ounces;
——— cochineal, powdered, two scruples (half a drachm, E.);
——— proof spirit of wine, two pints (two pounds and a half, E.):
Digest with a gentle heat for seven days, and strain.

This is perhaps the best preparation of hellebore, when designed for an alterative, the menstruum here employed extracting the whole of its virtues. It has been found particularly serviceable in uterine obstructions. In sanguine constitutions, where chalybeates are hurtful, it has been said that it seldom fails of exciting the menstrual evacuations, and removing the bad effects of their suppression. A tea-spoonful of the tincture may be taken twice a day in warm water, or any other convenient vehicle.

PRESCRIPTION.

℞. Take of the washed flowers of sulphur ounces 2,
——— black hellebore, in powder - drachms 2,
——— essence of bergamot - - - drachm 1,
——— hog's lard - - - - - - - ounces 2:

Make into an ointment; smear only the joints for three nights, and wash it off with soap and water the following morning. The itch is sure to disappear. Repeat the same process in a week, when an effectual cure will be produced. It may be as well at the same time to take night and morning a tea-spoonful of an electuary of flowers of sulphur mixed with honey or treacle.

FŒTID HELLEBORE.

HELLEBORUS FŒTIDUS.

Class XIII. Polyandria. *Order* VI. Polygynia.
ESSENT. GEN. CHAR. Same as the last.
SPEC. CHAR. *Stem* many-flowered, leafy: *Leaves* pedate.

DESCRIPTION.

THIS also rises to two feet in height. The leaves below are numerous, and stand upon long footstalks, resembling the former: those above are narrow, lanceolate, of a dark green. The flowers are inconspicuous, green, terminal, upon long peduncles.

HISTORY.

This plant is found wild in England, and flowers in February.

MEDICAL VIRTUE.

A decoction of about a drachm of the green leaves, or fifteen grains of the dried, is given to children, and repeated three mornings, when it seldom fails expelling the round worms; or a tea-spoonful of the juice, mixed with syrup, may be given for that purpose.

Its extract, which contains mostly its gummous parts, with some of its resin, is milder than the root itself, and is used for the same purposes: it is given from five grains to a scruple.

Its tincture, called *tinctura melampodii*, the old name given to this plant, which is drawn with one pound of proof spirit from four ounces of the root, is of the same nature. Dr. Mead recommends it as one of the most powerful medicines he knew for removing obstructions of the menses, given in the quantity of a tea-spoonful twice a day. I have often used it on Dr. Mead's recommendation; and though it did not succeed in every case, yet I found no medicine so efficacious in removing uterine obstructions, and restoring the natural menstrual discharge, as this tincture.

UPRIGHT VIRGIN'S BOWER.

CLEMATIS RECTA.

Class XIII. Polyandria. *Order* VI. Polygynia.

Essent. Gen. Char. *Calyx* none: *Petals* four to six: *Seeds* caudate.

Spec. Char. *Leaves* pinnate: *Pinnæ* ovate-lanceolate, entire: *Stem* erect: *Flowers* four- and five-petalled.

DESCRIPTION.

This plant rises about two feet in height. Leaves opposite, and pinnated. Pinnæ in pairs, and terminated by an odd one. Flowers terminating the stem in irregular umbels. Petals white. Seeds attached to their styles, which give them the appearance of feathered tails.

HISTORY.

Native of Hungary, Austria, and France, and flowers from June till August.

MEDICAL USE.

Dr. Stoerck recommends an infusion of two or three drachms of the leaves in a pint of boiling water, of which he gave four ounces three times a day. The bruised leaves were applied to ulcers as an escharotic. Given also in cutaneous affections, ulcers, and venereal affections of long standing.

MEADOW ANEMONY,
OR
PASQUE FLOWER.
ANEMONE PRATENSIS.

Class XIII. Polyandria. *Order* VI. Polygynia.

ESSENT. GEN. CHAR. *Calyx* none: *Petals* six to nine: *Seeds* many.

SPEC. CHAR. *Peduncle* involucred: *Petals* reflexed at their apex: *Leaves* bipinnate.

DESCRIPTION.

THIS plant rises six or eight inches. Stem erect, furnished near the top with a laciniated involucre. Leaves radical, bipinnate. Segments short, linear, of a glaucous green colour. Petals six, of a beautiful purple in the inside, the outside covered with soft hairs, reflexed. The seeds retain their styles, which appear like downy tails.

HISTORY.

Native of Germany, and flowers in May.

MEDICAL USE.

This medicine resembles the last in active powers, and, besides the diseases mentioned in that history, has been tried with success in several of the most incurable diseases of the eyes; as amaurosis, cataract, and opacity of the cornea. Dose the same as with the last.

UPRIGHT MEADOW CROWFOOT.
RANUNCULUS ACRIS.

Class XIII. Polyandria. *Order* VI. Polygynia.

ESSENT. GEN. CHAR. *Calyx* five-leaved: *Petals* five, with a melliferous scale at each unguis.

SPEC. CHAR. *Calyx* spreading: *Peduncles* smooth: *Lower leaves* tripartite-multifid: *Upper leaves* linear.

DESCRIPTION.

THIS plant rises two feet. Lower leaves on upright peduncles, trifid, subdivided into smaller laciniated lobes, marked underneath with small prominent reticular veins. Flowers of a fine yellow, as if glazed.

MEDICAL USE.

The leaves have been pounded and applied as a poultice, when it produces a vesication like a blister. Rheumatic affections have often readily given way to its use. It has been used internally for worms; and it may be remarked, that if a decoction of this plant be poured on ground containing worms, they will be forced to rise from their concealments, and may be taken in abundance for fishing with, although we cannot but condemn such bait as a wicked and barbarous practice.

SPEARMINT.

MENTHA VIRIDIS.

Class XIV. Didynamia. *Order* I. Gymnospermia.

Essent. Gen. Char. *Corolla* sub-equal, four-cleft: the broader *lacinia* emarginate: *Stamens* erect, distant.

Spec. Char. *Spikes* oblong: *Leaves* lanceolate, naked, serrate, sessile: *Stamina* the length of the corolla.

DESCRIPTION.

This plant rises two feet. Leaves large, elliptic, serrate, pointed, of a green colour, in pairs, seated on a short foot-stalk. Flowers small, purple, produced in terminal spikes.

HISTORY.

Spearmint is perennial, and a native of Britain; flowers in August.

MEDICAL VIRTUE.

It is not so warm as peppermint, and has an agreeable flavour; it is therefore preferred for tea, and is considered as stomachic and carminative.

PREPARATIONS.

Distilled Spearmint Water. (Aqua Menthæ Viridis.)

Take of spearmint, pound $1\frac{1}{2}$,
——— water, as much as to prevent empyreuma:
Distil off one gallon.

Spirit of Spearmint. (Spiritus Menthæ Viridis.)

Take of spearmint, $1\frac{1}{2}$ pound;
——— diluted alcohol, 9 pounds, E.;
——— proof spirit, one gallon, L.:
Macerate for two days in a close vessel; then pour on as much water as will prevent empyreuma, and draw off by distillation nine pounds.

Volatile Oil of Spearmint. (Oleum Volatile Menthæ Viridis.)

Volatile oils are prepared nearly in the same manner as the distilled waters, except that less water is to be added.

Substances which differ in volatility may be separated from each other by applying a degree of heat capable of converting the most volatile into vapour, and by again condensing this vapour in a proper apparatus. Water is converted into vapour at 212°, and may be separated by distillation from the earthy and saline matters which it always contains in a natural state. But, it is evident, that if any substances which are as volatile as water be exposed to the same degree of heat, either by immersing them in boiling water, or exposing them to the action of its steam, they will rise with it in distillation. In this way the camphor and volatile oils of vegetable substances are separated from the more fixed principles.

Volatile oils are obtained only from odoriferous substances; but not equally from all of this class, nor in quantity proportional to their degree of odour. Some which, if we were to reason from analogy, should seem very well fitted for this process, yield extremely little oil, and others none at all. Roses and chamomile flowers, whose strong and lasting smell promises abundance, are found to contain but a small quantity of oil: the violet and jessamine flower, which perfume the air with their odour, lose their smell upon the gentlest coction, and do not afford any oil on being distilled, unless immense quantitise

are submitted to the operation at once; while savin, whose disagreeable scent extends to no great distance, gives out the largest proportion of volatile oil of almost any vegetable known.

Nor are the same plants equally fit for this operation, when produced in different soils or seasons, or at different times of their growth. Some yield more oil if gathered when the flowers begin to fall off than at any other time. Of this we have examples in lavender and rue; others, as sage, afford the largest quantity when young, before they have sent forth any flowers; and others, as thyme, when the flowers have just appeared. All fragrant herbs yield a larger proportion of oil, when produced in dry soils and in warm summers, than in opposite circumstances. On the other hand, some of the disagreeable strong-scented plants, as wormwood, are said to contain most oil in rainy seasons, and when growing in moist rich grounds.

Several chemists have been of opinion, that herbs and flowers, moderately dried, yield a greater quantity of volatile oil than if they were distilled when fresh. It is, however, highly improbable that the quantity of volatile oil will be increased by drying; on the contrary, part of it must be dissipated and lost. But drying may sometimes be useful in other ways, either by diminishing the bulk of the subject to be distilled, or by causing it to part with its oil more easily.

The choice of proper instruments is of great consequence for the performance of this process to advantage. There are some oils which pass freely over the swan-neck of the head of the common still: others, less volatile, cannot easily be made to rise so high. For obtaining these last, we would recommend a large low head, having a rim or hollow canal round it: in this canal the oil is detained in its first ascent, and thence conveyed at once into the receiver, the advantages of which are sufficiently obvious.

We cannot separate the volatile oils from aromatic substances by distilling them alone, because the proportion of these oils is so small that they could not be collected; and besides, it would be impossible to regulate the heat so as to be sufficient, and yet not to burn the subject, and destroy the product. Hence it is necessary to distil them with a proportion of water, which answers extremely well, as the oils are all more volatile in water, and soluble in it only to a certain extent.

With regard to the proportion of water to be employed; if

whole plants, moderately dried, are used, or the shavings of woods, as much of either may be put into the vessel as, lightly pressed, will occupy half its cavity; and as much water may be added as will fill two-thirds of it. When fresh and juicy herbs are to be distilled, thrice their weight of water will be fully sufficient; but dry ones require a much larger quantity. In general, there should be so much water, that, after all intended to be distilled has come over, there may be liquor enough left to prevent the matter from burning to the still. The water and ingredients, altogether, should never take up more than three-fourths of the still; there should be liquor enough to prevent any danger of any empyreuma, but not so much as to be apt to boil over into the receiver.

The subject of distillation should be macerated in the water until it be perfectly penetrated by it. To promote this effect, woods should be thinly shaved across the grain, or sawn, roots cut transversely into thin slices, barks reduced into coarse powder, and seeds slightly bruised. Very compact and tenacious substances require the maceration to be continued a week or two, or longer; for those of a softer and looser texture, two or three days are sufficient; while some tender herbs and flowers not only stand in no need of maceration, but are even injured by it. The fermentation which was formerly prescribed in some instances, is always hurtful.

The fire ought to be quickly raised, and kept up during the whole process, but to such a degree only that the oil may freely distil; otherwise the oil will be exposed to an unnecessary heat; a circumstance which ought, as much as possible, to be avoided. Fire communicates to all these oils a disagreeable impregnation, as is evident from their being much less grateful when newly distilled than after they have stood for some time in a cool place; and the longer the heat is continued, the greater alteration it produces in them.

The greater number of oils require for their distillation the heat of water strongly boiling: but there are many also which rise with a heat considerably less; such as those of lemon and citron peel, of the flowers of lavender and rosemary, and of almost all the more odoriferous kinds of flowers. We have already observed, that these flowers have their fragrance much injured, or even destroyed, by beating or bruising them; it is impaired also by the immersion in water in the present process,

and the more so in proportion to the continuance of the immersion and the heat: hence oils, distilled in the common manner, prove much less agreeable in smell than the subjects themselves. For the distillation of substances of this class, another method has been contrived; instead of being immersed in water, they are exposed only to its vapour. A proper quantity of water being put into the bottom of the still, the odoriferous herbs or flowers are laid lightly in a basket, of such a size that it may enter into the still, and rest against its sides, just above the water. The head being then fitted on, and the water made to boil, the steam, percolating through the subject, imbibes the oil, without impairing its fragrance, and carries it over into the receiver. Oils thus obtained, possess the odour of the subject in an exquisite degree, and have nothing of the disagreeable scent perceivable in those distilled by boiling them in water in the common manner.

Plants differ so much, according to the soil and season of which they are the produce, and likewise according to their own ages, that it is impossible to fix the quantity of water to be drawn from a certain weight of them to any invariable standard. The distillation may always be continued as long as the liquor runs well flavoured off the subject, but no longer.

The mixture of water and oil, which comes over, may either be separated immediately, by means of a separatory, or after it has been put into large narrow-necked bottles, and placed in a cool place, that the portion of oil which is not dissolved in the water may rise to the top, or sink to the bottom, according to its specific gravity. It is then to be separated, either by a separatory (Plate I. fig. 10. of Duncan's New Edinburgh Dispensatory); or by means of a small glass syringe; or by means of a filter of paper; or, lastly, by means of a woollen thread, one end of which is immersed in the oil, and the other lower end in a phial: the oil will thus pass over into the phial by capillary attraction; and the thread is to be squeezed dry.

The water employed in the distillation of volatile oils always imbibes some portion of the oil, as is evident from the smell, taste, and colour, which it acquires. It cannot, however, retain above a certain quantity; and therefore such as has been already used, and therefore almost saturated, may be advantageously employed, instead of common water, in a second, third, or any future distillation of the same subject.

After the distillation of one oil, particular care should be had to clean the worm perfectly before it be employed in the distillation of a different substance. Some oils, those of wormwood and aniseeds for instance, adhere to it so tenaciously as not to be melted out by heat, or washed off by water: the best way of removing these is to run a little spirit of wine through it.

Volatile oils, after they are distilled, should be suffered to stand for some days, in vessels loosely covered with paper, till they have lost their disagreeable fiery odour, and become limpid; then put them up in small bottles, which are to be kept quite full, closely stopped in a cool place. With these cautions they will retain their virtues in perfection for many years.

Most of the oils mentioned above are prepared by our chemists in Britain, and are easily procurable in a tolerable degree of perfection; but the oils from the more expensive spices, though still introduced among the preparations in the foreign pharmacopœias, are, when employed among us, usually imported from abroad.

These are frequently so much adulterated, that it is not easy to meet with such as are at all fit for use: nor are these adulterations easily discoverable. The grosser abuses, indeed, may be readily detected. Thus, if the oil be mixed with alcohol, it will turn milky on the addition of water; if with expressed oils, alcohol will dissolve the volatile, and leave the other behind; if with oil of turpentine, on dipping a piece of paper in the mixture, and drying it with a gentle heat, the turpentine will be betrayed by its smell. But the more subtle artists have contrived other methods of sophistication, which elude all trials of this kind.

Some have looked upon the specific gravity of oils as a certain criterion of their genuineness. This, however, is not to be absolutely depended on; for the genuine oils, obtained from the same subjects, often differ in gravity as much as those drawn from different ones. Cinnamon and cloves, whose oils usually sink in water, yield, if slowly and carefully distilled, oils of great fragrancy, which are specifically lighter than the aqueous fluid employed in their distillation; whilst, on the other hand, the last runnings of some of the lighter oils prove sometimes so ponderous as to sink in water.

As all volatile oils agree in the general properties of solubility in spirit of wine, indissolubility in water, miscibility with water, by the intervention of certain intermedia, volatility in the heat of boiling water, &c., it is plain that they may be variously

mixed with each other, or the dearer sophisticated with the cheaper, without any possibility of discovering the abuse by any trials of this kind: and, indeed, it would not be of much advantage to the purchaser, if he had infallible criteria of the genuineness of every individual oil. It is of as much importance that they be good, as that they be genuine; for genuine oils, from inattentive distillation, and long and careless keeping, are often weaker, both in smell and taste, than the common sophisticated ones.

The smell and taste seem to be the only certain test of which the nature of the thing will admit. If a bark should have in every respect the appearance of good cinnamon, and should be proved indisputably to be the genuine bark of the cinnamon tree; yet if it want the cinnamon flavour, or has it but in a low degree, we reject it; and the case is the same with the oil. It is only from use and habit, or comparisons with specimens of known quality, that we can judge of the goodness, either of the drugs themselves, or of their oils.

Most of the volatile oils, indeed, are too hot and pungent to be tasted with safety; and the smell of the subject is so much concentrated in them, that a small variation in this respect is not easily distinguished; but we can readily dilute them to any assignable degree. A drop of the oil may be dissolved in spirit of wine, or received on a bit of sugar, and dissolved by that intermedium in water. The quantity of liquor which it thus impregnates with its flavour, or the degree of flavour which it communicates to a certain determinate quantity, will be the measure of the degree of goodness of the oil.

COMPOUND INFUSION OF SPEARMINT. (Infusum Menthæ Viridis Compositum.)

Take of the leaves of spearmint, dried, two drachms;
——— boiling water, as much as will afford six ounces of the infusion, when filtered:

Digest for half an hour, in a covered vessel; strain the liquor when cold, and then add of

Double refined sugar, two drachms;
Oil of spearmint, three drops, dissolved in
Compound tincture of cardamums, half an ounce. Mix.

This infusion is slightly stimulating and diaphoretic, and forms a very agreeable herb tea, which may be used in any quantity in diet, or as a vehicle for more active remedies.

PEPPERMINT.

MENTHA PIPERITA.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. Same as the last.

SPEC. CHAR. *Flowers* capitate: *Leaves* ovate, petiolate: *Stamens* of the corolla very short.

DESCRIPTION.

RISES two feet in height. Leaves egg-shaped, serrated, pointed, of a dark green, standing in pairs, upon footstalks. Flowers purple, produced in terminal spikes.

HISTORY.

This species of mint is also perennial, and a native of Britain, where it is cultivated in very great quantities, for the sake of its essential oil. It flowers in August and September. The leaves have a strong, rather agreeable smell, and an intensely pungent, aromatic taste, resembling that of pepper, and accompanied with a peculiar sensation of coldness.

Its predominant constituents are essential oil and camphor, both of which rise in distillation, and are combined in what is called oil of peppermint.

MEDICAL USE.

Peppermint is principally used as a carminative and antispasmodic. The distilled water is a domestic remedy for flatulent colic, and the essential oil is often given with advantage, in doses of a few drops, in cramps of the stomach.

PREPARATIONS.

PEPPERMINT WATER. (Aqua Distillata Menthæ Piperitæ.)

Take of the herb of peppermint, dried, a pound and a half;
——— water, as much as is sufficient to prevent burning:
Distil off a gallon. This has been known to allay sickness when nothing else would succeed, and is used in flatulent colics. A wine-glass may be taken, and often repeated. It is especially ordered with opening medicines, to prevent the gripings that would otherwise accompany them.

SPIRIT OF PEPPERMINT. (Spiritus Menthæ Piperitæ.)

Take of the herb of peppermint, dried, a pound and a half;
——— proof spirit, a gallon;
——— water, sufficient to prevent burning:
Distil off a gallon. This is used for the same purposes as the last, but in a smaller dose.

Note. The proof spirit usually met with in the shops is very rarely pure, or free from all unpleasant flavour, which, though concealed by means of certain additions, plainly discovers itself when employed for the preparation of distilled spirits. This nauseous flavour does not begin to arise till after the alcohol has come over, which is the very time that the virtues of the ingredients begin also to arise most plentifully; and hence the liquor receives an ungrateful taint. To this cause principally is owing the general complaint, that the cordials of the apothecary are less agreeable than those of the same kind prepared by the distiller; the latter being extremely curious in rectifying and purifying the spirits, which he uses for what he calls fine goods, from all unpleasant flavour.

OIL OF PEPPERMINT. (Oleum Volatile Menthæ Piperitæ.)

This is made like the other essential oils, and is frequently mixed with water, and this is passed off for the true distilled peppermint water; but it is more pungent and heating, and has less of the virtues of the plant.

PENNYROYAL MINT.

MENTHA PULEGIUM.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. *Corolla* subequal, four-cleft; the broader *lacinia* emarginate: *Stamens* erect, distant.

SPEC. CHAR. *Flowers* verticillate: *Leaves* ovate, obtuse, subcrenate: *Stem* rather smooth, repent.

DESCRIPTION.

THIS plant rises about a foot. The leaves are ovate, obtuse, of a bright green, and stand upon short footstalks at the joints of the stem. Flowers in whorls at the joints, of a pale purple.

HISTORY.

This is also perennial, and a native of Britain. It flowers in September. In its sensible qualities, it is warm, pungent, and aromatic, somewhat similar to spearmint, but less agreeable.

MEDICAL VIRTUE.

This is seldom ordered by the faculty, but is used as a popular remedy with much confidence in obstructions of the courses, or when these are attended with pain or hysteria. The officinal preparations are the same as the last; a simple distilled water, a spirit, and an essential oil.

GROUND IVY.

GLECOMA HEDERACEA.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. The *Anthers* of each pair connive with the other so as to form a cross: *Calyx* five-cleft.

SPEC. CHAR. *Leaves* kidney-shaped, crenate.

DESCRIPTION.

LEAVES scolloped, hairy, in opposite pairs, having long petioles, which are channelled. Flowers in whorls, on short peduncles, blue, ringent, upper lip bifid, erect, lower divided into three lobes, middle one emarginate.

HISTORY.

Found common under hedges, and flowers in April.

MEDICAL VIRTUE.

This plant forms one of the cries in London, and is drunk as tea, as a purifier of the blood. Ray relates a remarkable cure of a Mr. Oldacre, who by snuffing up the juice of this plant was cured of an inveterate head-ach. His words are: "Succus hujus plantæ naribus attractus cephalalgiam etiam vehementissiman et inveteratam non lenit tantùm sed penitus aufert. Medicamentum hoc non satis potest laudari, si res ex usu æstimarentur, auro æquiparandum."

COMMON HOREHOUND.

MARRUBIUM VULGARE.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. *Calyx* salver-shaped, rigid, with ten striæ: *Upper lip* of the corolla bifid, linear, straight.

SPEC. CHAR. *Teeth* of the calyx setaceous, uncinate.

DESCRIPTION.

THIS plant rises a foot and a half in height. Leaves deeply serrated, veined, wrinkled, hoary, in pairs, standing upon thick, broad footstalks. Flowers white, in whorls. Calyx cut into ten segments, which are hooked at the apex. Lower lip of the corolla divided into three segments, largest segment emarginate, upper lip two-cleft.

HISTORY.

This is a perennial plant, which grows wild on road sides and among rubbish, and flowers in July. The leaves have a very strong, not disagreeable smell, and a roughish, very bitter taste. Neumann got from 480 grains, 270 watery, and 30 alcoholic extract; and inversely, 150 alcoholic, and 140 watery.

MEDICAL VIRTUES.

It has a bitter principle, and has been recommended for pituitous asthma, coughs, and female weaknesses; and Haller mentions his having cured a consumption by means of an aqueous infusion. The dose is two or three ounces of the expressed juice, or the infusion of half a handful of the fresh leaves, in a sufficient quantity of boiling water, drunk as tea. At present the following is chiefly employed:—

Candied Horehound.

Boil some horehound till the juice is extracted. Boil up some sugar to a feather (see p. 330, of New London Family Cook); add your juice to the sugar, and let it boil till it is again the same height. Stir it with a spoon against the sides of your sugar pan till it begins to grow thick, then pour it into a paper case that is dusted with fine sugar, and cut it into squares. You may dry the horehound, and put it into the sugar finely powdered and sifted. Small pieces are put into the mouth, and this certainly greatly tends to allay irritation; and probably the bitter may have some good effect in bracing the stomach, and hence the whole system.

WILD MARJORAM.

ORIGANUM VULGARE.

Class XIV. Didynamia. *Order* I. Gymnospermia.

Essent. Gen. Char. *Strobile* tetragonal, spicate, collecting all the calyxes.

Spec. Char. *Spikes* subrotund, paniculate, conglomerate: *Bracteas* ovate, length of the calyx.

DESCRIPTION.

This plant rises about a foot and a half. The leaves are ovate, pointed, smooth above, beneath downy, in pairs. Flowers terminal, of a pale purple. Upper lip erect, bifid, lower trifid, segments obtuse. Filaments long, with double anthers, distant above, below forming a cross.

HISTORY.

Native of Britain, on dry chalky hills and gravelly soils; flowers in July and August.

MEDICAL VIRTUE.

Distilled with water it yields a moderate quantity of a very acrid, penetrating, essential oil, which has been much extolled as easing toothach from a carious tooth. The dried leaves are used as tea, and to some palates it is very grateful, especially to nervous habits.

COMMON GARDEN THYME.

THYMUS VULGARIS.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. Same as the last.

SPEC. CHAR. *Stem* erect: *Leaves* revolute, ovate: *Flowers* verticillate-spicate.

DESCRIPTION.

THIS rises a foot in height. Leaves small, narrow, elliptical, slightly indented, in pairs, standing upon short petioles. Flowers of a pale purple.

HISTORY.

Native of the south of France; flowers from May till August.

MEDICAL VIRTUE.

Like the last it abounds with an essential oil, also a native camphor, but is employed chiefly for culinary purposes.

CALAMINT.

THYMUS CALAMINTA.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. The same as the last.

SPEC. CHAR. *Peduncles* many-flowered: *Flowers* axillary, as long as the leaves.

DESCRIPTION.

THIS plant rises one or two feet, with an upright, quadrangular, hairy stem. The leaves in pairs, ovate, and serrated, hairy on both sides. Calyx hairy. Corolla also hairy, of a light violet. Upper lip lilac-coloured within, lower lip pale within, but marked with three round dots, and a few short streaks of a deeper hue.

HISTORY.

It is a melissa according to Woodville, but a thymus according to Dr. Smith. It is native of England, and flowers during July and August.

MEDICAL VIRTUE.

The same as the last.

COMMON BALM.

MELISSA OFFICINALIS.

Class XIV. Didynamia. *Order* I. Gymnospermia.

Essent. Gen. Char. *Calyx* angular, scariose, with the *upper Lip* ascending, bifid.

Spec. Char. *Racemes* axillary, verticillate: *Pedicels* simple.

DESCRIPTION.

Stem rises two or three feet. Leaves egg-shaped, spreading, rough, ribbed, veined, deeply serrated, of a bright green, placed upon long petioles. Flowers white, ringent, proceeding from the alæ of the wings.

HISTORY.

Balm is a perennial plant, which grows wild on the Alps and Pyrennees, and is frequently cultivated in our gardens. It has a pleasant smell, and a weak, roughish, aromatic taste. The young shoots have the strongest flavour; the flowers, and the herb itself when old, or produced in very moist rich soils or rainy seasons, are much weaker both in smell and taste.

MEDICAL USE.

It is principally used in the form of a watery infusion, which is drunk in the manner of tea.

DITTANY OF CRETE.

ORIGANUM DICTAMNUS.

Class XIV. Didynamia. *Order* I. Gymnospermia.

Essent. Gen. Char. *Strobile* four-sided, spiked, collecting the calyxes.

Spec. Char. Inferior *Leaves* tomentose: *Spikes* nodding.

DESCRIPTION.

This rises about a foot. Leaves ovate, blunt, opposite, on short footstalks, covered with soft hairs. Flowers purple. Bracteæ numerous, coloured. Corolla lipped, upper straight, under cut into three obtuse lobes, middle one largest.

HISTORY.

Flowers from June till August; native of the island of Candia, where tomentose plants abound.

MEDICAL VIRTUES.

The Latin poet makes it vulnerary, a virtue so much celebrated in the dark ages:

——————Non illa feris incognita capris
Gramina, cùm tergo volucres hæsere sagittæ.—Æn. xii. 411.

It is certainly a stimulant, and thought to be emmenagogue; but its real virtues are but ill understood as yet.

LAVENDER.

LAVENDULA SPICA.

Class XIV. Didynamia. *Order* I. Gymnospermia.

Essent. Gen. Char. *Calyx* ovate, subdentate, supported by a bractea: *Corolla* resupine: *Stamina* within the tube.

Spec. Char. *Leaves* sessile, lanceolate-linear, revolute at the margins: *Spike* interrupted.

DESCRIPTION.

Plant bushy, flowering stem erect, often rising four or five feet. Leaves numerous, long, narrow, without footstalks, mostly opposite, of a whitish green colour. Flowers in terminal spikes, of a bright blue. Corolla ringent. Upper lip cut into two divisions, lower lip into three.

HISTORY.

Lavender is a well known, small, shrubby, perennial plant, a native of the south of Europe, but frequently cultivated in our gardens for the sake of its perfume. There are two varieties. The flowers of both have a fragrant, agreeable smell, and a warm, pungent, bitterish taste; the broad-leaved variety is the strongest in both respects, and yields in distillation thrice as much essential oil as the other; its oil is also hotter, and specifically heavier: hence, in the southern parts of France, where both kinds grow wild, this only is used for the distillation of what is called oil of lavender. The narrow-leaved is the variety commonly met with in our gardens. It flowers from July till September.

MEDICAL VIRTUE.

It is a warm cordial, and is used in hysteria, lowness, and other nervous affections.

OFFICINAL PREPARATIONS.

Spirit of Lavender.

From two pounds of the flowering spikes of lavender, according to the Edinburgh college, and from a pound and a half, according to the London, this spirit is to be formed. It is used as an analeptic perfume; also taken inwardly, in case of fainting, from a drachm to half an ounce.

Compound Spirit of Lavender. (Tinctura Lavendulæ Composita.)

Take of the spirit of lavender, three pounds;
——— spirit of rosemary, one pound;
——— cinnamon, half an ounce;
——— nutmeg, the same;
——— red sanders, three drachms:

Digest for ten days and then strain off. This is often taken upon sugar, and is a salutary cordial, far preferable to drams, which are too often had recourse to by persons feeling a great sinking, or depression of the spirits.

Lavender Water.

The common mode of preparing this is to put three drachms of the essential oil of lavender, and one drachm of the essence of ambergris, into one pint of spirits of wine.

WOOD BETONY.

BETONICA OFFICINALIS.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. *Superior Lip* of the *Corolla* flat, rising: *Tube* cylindrical: *Stamina* the length of the throat.

SPEC. CHAR. *Spike* interrupted: *Upper Lip* of the *Corolla* entire, *lower Lip* notched.

DESCRIPTION.

THIS plant rises a foot in height. The stem is square, and hairy. Upper leaves on short footstalks, the lower on long, opposite, hairy. Flowers in spikes, composed of several whorls, of a purple colour. Bracteas placed under the flowers.

HISTORY.

Native of Britain, common in woods and heaths, flowering in August and Sptember.

MEDICAL VIRTUES.

"The description of the βετονικη by Dioscorides," says Dr. Woodville, "applies equally to many of the other verticillated plants; he also states it to be purgative: hence it seems doubtful if by that name he meant our plant." But its root both vomits and purges, taken in the smallest dose.

Antonius Musa, physician to the emperor Augustus, filled a whole volume with enumerating its many virtues; it cured forty-seven different disorders; and hence the proverb still existing, "You have more virtues than betony."

Hildanus boasts, that by giving two drachms to the dose he has cured the gout in others and himself. Cullen allows it to be a good cephalic; and Scopoli says, that he experienced himself its good effects. This plant merits a better investigation from modern physicians than it has hitherto received.

CREEPING BUGLE.

AJUGA REPTANS.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. *Superior Lip* of the *Corolla* small, emarginate. *Stamina* longer than the superior lip.

SPEC. CHAR. *Stem* single, having creeping stolones.

DESCRIPTION.

STEM a foot, quadrangular, at the base stoloniferous, prostrate, creeping. Leaves opposite, obovate, obtuse, spreading. Verticils many-flowered. Corolla blue, with a white throat.

HISTORY.

Native of Britain, in moist meadows, pastures, and woods; flowers from April to July.

MEDICAL VIRTUE.

This plant has some degree of astringency, but its virtues are as yet but slightly ascertained. In sore throats, without much constitutional derangement, it is said to be a specific. "In angina absque febre valet decoctum." Mémoires de l'Académie des Sciences, anno 1754, p. 514.

WATER GERMANDER.

TEUCRIUM SCORDIUM.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. No superior lip of the *Corolla*, beyond the base two-parted.

SPEC. CHAR. *Leaves* oblong, sessile, dentate-serrate: *Flowers* paired, axillary, on peduncles: *Stem* diffused.

DESCRIPTION.

THIS plant rises to a foot in height. Leaves in pairs, serrated, hairy, oblong, of a dusky green, sessile. Flowers in whorls, at the base of the leaves, often two together. Upper lip as if none; under lip long, of a purple colour, dentated on the sides.

HISTORY.

It is native of England, and grows in marshy situations, flowering in July and August. The leaves possess both the smell and taste of garlic.

MEDICAL VIRTUES.

It is recommended by Galen as an antipestilential, who relates this virtue was found out by the bodies of the slain not equally corrupting where this plant abounded:—"Cadavera quæcunque supra scordium fortè fortuna ceciderant, multo minus aliis computruisse, ea præsertim ex parte quæ herbam contigerat." *Lib. de Antidot.* The great Boerhaave says, that outwardly applied it stops gangrene; and we are told that it was used with great success in the plague which rages in Turkey. *Chenot de Peste*, p. 132.

COMMON BASIL.

CLINOPODIUM VULGARE.

Class XIV. Didynamia. *Order* I. Gymnospermia.

ESSENT. GEN. CHAR. *Calyx* bilabiate: *Involucre* of many bristles under the whorl.

SPEC. CHAR. *Verticilli* hispid: *Bracteas* setaceous: *Pedicels* branching: *Leaves* obscurely serrated.

DESCRIPTION.

THE stem rises about a foot. The leaves are in pairs, ovate, rather obtuse, obscurely serrated. Verticilli terminal, and axillary. The involucres very narrow, shorter than the calyx. Flowers a reddish purple, at the throat hirsute, having round segments.

HISTORY.

Native of Britain, under hedges and in thickets, on a calcareous soil; flowers in August.

MEDICAL VIRTUE.

It is aromatic, and, like other plants of that class, invigorates the system, and produces good in leucophlegmatic habits, especially chlorosis, or the green sickness, and the king's evil.

COMMON EYEBRIGHT.

EUPHRASIA OFFICINALIS.

Class XIV. Didynamia. *Order* II. Angiospermia.

ESSENT. GEN. CHAR. *Corolla* four-cleft, cylindrical: *Capsule* two-celled.

SPEC. CHAR. *Leaves* ovate, acutely dentate.

DESCRIPTION.

STALK a few inches in height. Leaves sessile, opposite, deeply serrated, rather hairy. Flowers sessile, arising from the alæ of the leaves. Corolla two-lipped, white, streaked with purple lines. Upper lip erect, bifid; under three-lobed, emarginate; middle lobe tinged with yellow.

HISTORY.

Common in barren meadows, producing flowers from July till September.

MEDICAL VIRTUES.

The juice mixed with water is stimulant, and in dimness of sight, or weakness of the eyes, has done good. Haller boasts of its virtue, where valerian has also been given inwardly.

CHASTE TREE.

VITEX AGNUS CASTUS.

Class XIV. Didynamia. *Order* II. Angiospermia.

ESSENT. GEN. CHAR. *Calyx* five-toothed: *Corolla*, limb six-cleft: *Berry* four-seeded.

SPEC. CHAR. *Leaves* digitate, entire: *Spikes* verticillate.

DESCRIPTION.

THIS tree, or shrub, divides into numerous branches. Leaves opposite, on long footstalks, separated into five portions, which are long, narrow, and pointed. Flowers in whorls, of a bright red, labiate, divided into four segments, the lowest largest.

HISTORY.

Native of Sicily, but braves our winters; flowers in October.

MEDICAL VIRTUES.

As there are provocatives to procreation, as shell-fish, eggs, and roots of orchises made into salep for the male, and spare diet and the use of steel for the female, so it is possible the chaste tree may have a contrary effect; and hence the seeds have been called *Piper monachorum* (Monk's pepper), who flew to them when they found the spirit to be willing, but the flesh weak.

FOXGLOVE.

DIGITALIS.

Class XIV. Didynamia. *Order* II. Angiospermia.

Essent. Gen. Char. *Calyx* five-parted: *Corolla* bell-shaped, five-cleft, bellied: *Capsules* ovate, two-celled.

Spec. Char. *Leaves* of the calyx ovate, acute: *Segments* of the corolla obtuse: *Upper Lip* entire.

DESCRIPTION.

The stalk is erect, tapering, rises four or five feet. Leaves large, oval, wrinkled, veined, on short winged footstalks, downy underneath; the bracteas attendant on the flowerstalks are small, spear-shaped, and sessile. The flowers always depend on one side; these are purple, bell-shaped, marked internally with little dark-coloured spots placed in whitish rings, and long hairs defend the entrance of the tube; hence no insects ever approach

this flower. The flowerstalks vary in length; at first they depend like the flowers, afterwards become erect, when they elevate a two-celled capsule containing many blackish seeds, exposed to observation by having the long style with its bifid stigma attached to it, and the segments of the calyx standing open.

HISTORY.

This most elegant plant is found common all over England in dry sandy soils, also more frequent by the sides of hedges; flowers in July, and seeds in August; it is called in French *gent de Nôtre Dame*, from its corolla having a leathery substance.

MEDICAL USE.

No plant has been more esteemed as a popular remedy, and till of late little attended to by the faculty, and still its many powerful virtues are yet unknown. The reader will be, perhaps, surprised to find the following account in the Theatrum Botanicum of old Parkinson, in chap. lxxxii. p. 653, when discoursing on this plant:—

VIRTUES.

"The Italians have an usuall proverbe with them concerning this herbe, called by them *aralda*, which is, *Aralda tutte piaghe salda:* Aralda salveth all sores: for they use it familiarly to heale any fresh or greene wound or cut, the leaves being but bruised and bound too, and sometimes also they use the juyce in old sores to clense them, dry up their moysture, and heale them the more speedily, which it performeth by the bitter quality therein, whereby it is found to be heating and drying, and clensing withall; so that whensoever there is neede of a rarefying or extenuating of thick toughe flegme and viscous humours troubling the chest or stomacke, the decoction or juice hereof made up with some sugar or honey is availeable, as also to clense and purge the body both upwards and downewards sometimes, of tough flegme and clammy humours, and to open the obstructions of the liver and spleene; and yet notwithstanding that these qualities are found to bee in it, there are but few physitions in our times that put it to these uses, but is in a manner wholly neglected: it hath beene found by late experience to be availeable for the king's evill, the herbe bruised and applyed to the place, or the juice made up into an ointment and used thereon: and it hath beene of later experience found also to be effec-

tuall against the falling sicknesse, that divers have beene cured thereby; for after the taking of the decoction of two handfulls thereof, with four ounces of pollipody, of the oake bruised made in ale, they that have beene troubled with that disease 26 yeares, and have fallen once in a weeke or two or three times in a moneth, have not fallen once in 14 or 15 moneths, that is, untill the writing hereof, which I thinke may be sayd to be an absolute cure, not to be presumed that after so long stay it should returne againe."

Old Gerard, p. 791, says:

"Foxgloue boiled in water or wine, and drunken, doth cut and consume the thicke toughnesse of grosse and slimie flegme and naughty humours; it openeth also the stopping of the liuer, spleene, and milt, and of other inward parts.

"The same taken in like manner, or boiled with honied water or sugar, doth scoure and clense the brest, ripeneth and bringeth forth tough and clammie flegme."

Ray, in chap. v. De Digitali, p. 767, speaking of the virtues of the foxglove, says:

"Digitalis herba emetica est. Somerseti Angliæ rustica turba hujus decocto febricitantibus purgationes et interdum superpurgationes et vomitiones humidioribus alvo molitur. *Lob. Ob.*

"Parkinsonus efficacem esse contra epilepsiam affirmat, si duo ejus manipuli cum ℥ iv. polypodii quercini in cerevisia decoquatur, et decoctum propinetur. Qui enim viginti et sex annos continuos eo morbo laborârant ita ut singulis mensibus bis térve caderent, hujus decocti usu penitus liberati sunt, saltem per integros sedecim menses nè unum quidem paroxysmum senserunt. *Verùm medicamentum hoc robustioribus tantùm convenit, siquidem violenter admodum purgat et vomitiones immanes excitat.*

"Strumosis conducere tritam et impositam succúmve ejus in unguento experientiâ compertum est. *Park.* Novi plures (inquit D. Batesius in MS. nondum edito) qui in strumosis tumoribus digitalis floribus valdè confidunt, quos quidam in butyro Maiali, quot possunt immittentes curant insolandos per æstatem. Alii cum adipe porcino miscent, et sub terra defodiunt per quadraginta dies, utrique flores cum unguento reservant, unà linteis inducunt et tumoribus applicant: hosce tumoribus discutiendis vel maturandis, ulceribus detergendis vel explendis sufficere ferunt se expertos. Quinto et sexto quoque die diacarthamo purgant, interim continuè decoctum herbæ Robertianæ præbent:

pars ulceris rubens parte unguenti tenuiore illinatur: pars autem crassior unguenti linteamini imponatur, quod nunquam mutetur. Sunt qui novella et primò erumpentia plantæ germina accipiunt, eorúmque succum expressum in butyro coquunt ad succi consumptionem, atque hoc novo succo addito bis térve repetunt.

"N. 1. Oportet ut paretur sufficiens quantitas unguenti eo anni tempore quo flores haberi possunt, cùm nonnunquam integer annus aut eo amplius ad curam perficiendam requiratur.

"N. 2. Quamvis ulcera primò majora fiant nè metuas, siquidem unguentum postquam humores omnes absumpserit et exsiccaverit, ea demum sanabit & cute obducet.

"N. 3. Unguentum hoc in scrophulis humidis et purè manantibus præcipuè utile est, in siccis parum valet; sed ad basilicon et præcipitatum confugiendum. Habui ex relatione viri amicissimi, tum rei herbariæ tum totius medicinæ peritissimi D. *E. Hulse.*

"Proverbium est Italicum, *Aralda tutte le piaghe salda;* i. e. Digitalis sanat omnia vulnera." 'Digitalis cures every wound.'

Salmon gives the foxglove the following very high encomium:

"This specific," says he, in the New London Dispensatory, "which transcends all the medicines here mentioned, and many others besides, is the herb foxglove. A weak decoction of the herb in water, or in wine, or in half water and half wine, may be drunk as ordinary drink; and of the juice of the herb and flowers may be made a rob or syrup, with honey, which being taken, three spoonsful at a time, first in the morning fasting; second, at ten in the morning; thirdly, at four in the afternoon; and lastly, at going to bed, will restore, where the patient is not past cure, beyond all expectation. It cures a phthisis or ulcer of the lungs when all other medicines have failed, and the sick are esteemed past cure: but as it is a very strong medicament, and emetic withal, so it ought to be given with discretion, not to transcend the strength of the patient, for then instead of doing good it may do hurt; and therefore the syrup ought to be taken at first in a lesser dose, and to be increased as you see cause. It opens the breast and lungs, frees them from phlegm, and cleanses the ulcer and heals it when all other remedies act without effect. I have known it to do wonders, and speak here from a long experience. Persons in deep consumptions, and given over by all physicians, have by the use of this herb been strangely recovered, and so perfectly as to grow fat again."

From this recommendation I have known Miss C——, a coach-maker's daughter, and others, in consumptions, collect the fresh plant and force out the juice, and take the enormous dose here recommended, three spoonsful (dessert-spoonsful), four times a day, and with manifest advantage.

This remedy is found advantageously employed in the following diseases:

1. *In inflammatory diseases.*

The pulse is sometimes remarkably diminished by the use of digitalis, and sometimes as remarkably resisting to the powers of this remedy. We have seen the pulse sink down in a patient at Guy's Hospital to thirteen beats in a minute, and in other instances as much as three ounces of the tincture has been taken without the smallest alteration in the pulse. In severe colds, and inflammations of the lungs, we have ordered the digitalis instead of bleeding: also in measles. Considering that scarlet fever is a mixture of high inflammation and putrid diathesis, the one running into the other, this remedy was tried by us in large doses, as twenty drops of the tincture of digitalis with ten drops of antimonial wine, in children of twelve years of age and under; and in a large experience in the St. James's charity school, and in private practice, we have had abundant reason to approve of this discovery, whereby even in the most desperate cases none have died. An account of these cures, with some experiments made with the foxglove by two of our pupils, was given to the Bolt Court Medical Society, and may be seen in their Memoirs.

2. *In active hæmorrhages, and in phthisis.*

Here the foxglove does essential advantage; it lowers the pulse without at the same time diminishing the strength, and should be given in twenty drops of the tincture four times a day.

A Letter to Dr. Beddoes, containing Observations on the Use of Digitalis in Pulmonary Consumption, with two Cases in which it proved permanently successful. By NATHAN DRAKE, *M. D., Member of the Royal Medicinal Society of Edinburgh.*

Sir, In a disease so generally fatal as phthisis pulmonalis, and for which, though frequently sought for, no certain remedy has hitherto been discovered, it seems the duty of every intelligent physician to pursue, if possible, an original plan, to ascertain the effects of new medicines, or to re-apply those which, though possessing strong powers, caprice, ignorance and apprehension

have prematurely laid aside. To your indefatigable perseverance in the cultivation and application of chemical science, we are indebted for a novel class of remedies, which bids fair to remove or alleviate some of the most distressing complaints incident to humanity. To the disease under consideration you have particularly turned your attention, and sought for assistance, not only from pneumatic chemistry, but from every quarter which held forth the prospect of aid. It is therefore with peculiar pleasure that, complying with your request, I now communicate to you two cases of phthisis, in which the digitalis purpurea of Linnæus has been employed with permanent success. Though the exhibition of digitalis in consumption be not absolutely new, yet I trust the mode in which I have administered it has a claim to that appellation; and the facts brought forward prove, what assuredly is of vast importance, that by the use of this medicine the pulse may be lowered to forty strokes in a minute, without any previous sickness, and the depression continued for weeks together with the happiest consequences.

As every physician is supposed maturely to weigh his motives for the administration of any medicine, and to form some theory of its operation at least, and probable effects, it may not be unnecessary in this place briefly to state my views in prescribing this plant in cases so apparently desperate.

It has been lately maintained by the most celebrated physiologists, among whom John Hunter stands foremost, that pus is a secreted fluid, the consequence of certain diseased motions of the extremities of the blood-vessels; it has been likewise ascertained, that hectic fever arises only from the matter of an open ulcer; that what is termed laudable pus, when secluded from the air, is neither capable of creating fever, nor, except by its gravity, can it irritate the parts on which it rests. When pus, however, is exposed to atmospheric air, it rapidly attracts oxygen, an acid of a peculiar kind is generated, and hectic fever, the effect of the absorption of aërated matter, is produced. Now as an ulcer of the lungs is perpetually exposed to a stream of air, and of course an ichorous poison continually forming by the union of oxygen with secreted matter, an important curative process would seem to arise from promoting absorption so rapidly from the surface of the diseased parts, that the pus shall be taken up as soon as secreted, and consequently its combination with oxygen prevented. If at the same time the medicine

employed to promote absorption should so powerfully retard the motion of the heart and circulating fluids, that the irritating and morbid action of the extremities of the blood-vessels, and therefore secretion as its immediate effect, should be considerably diminished, if not altogether suspended, another most salutary purpose would be accomplished. To the cautious and continued use of digitalis, Sir, I looked for these consequences, though whether I should be able to render them sufficiently permanent to promote a cure, was necessarily a matter of great doubt. It was my wish also, as I have mentioned above, to effect these changes without any previous sickness, concluding, that should I be able gradually to depress the circulation, nausea, as a link in the chain of effects, might be excluded, and absorption, together with a suppression of morbid action and secretion, still be the result.

It is a well-known fact, and probably arising from an indissoluble association between the stomach and the heart, that the pulse generally sinks in consequence of nausea; and as subsequent to the retardation of the action of the heart, absorption frequently occurs, it has been supposed that nausea, a diminution of arterial motion, and absorption, are mutually and necessarily related to each other, and that were the first of these phænomena abstracted, the latter, viz. absorption, would not be produced. It has therefore been usually attempted to promote pulmonary absorption through the medium of this affection of the stomach, whence the prescription of emetics, of sailing at sea, and of swinging, to induce vertigo and sickness; and the digitalis has been hitherto exhibited with this view. The cases annexed, however, will prove that the circulation may be safely, powerfully, and perhaps more permanently retarded, independent of any affection of the stomach, and that absorption as certainly follows a depression thus procured, as when sickness has ushered it in.

The preparation of digitalis best adapted to my purpose, appeared to be the saturated tincture; and in the first case I commenced with but fifteen drops twice a day, in the second twenty. Mr. Marris gradually increased the dose of tincture until he took one hundred drops: this quantity was first ordered on the 12th of July, when the pulse beat but fifty strokes in the minute, and was continued for nine days, when his pulse dropped to forty. Beyond this depression I thought it unsafe to proceed,

and therefore immediately diminished the dose of tincture. During the interval between the 22d of June and the 17th of July, though the dose of the digitalis had in this period gradually attained to its maximum, not the least sickness occurred, nor any one symptom that could lead to apprehension. On the 17th, however, a considerable intermission of the pulse took place, and continued for better than a fortnight, though without occasioning to the patient the smallest uneasy sensation. In Mr. Grimes's case the dose of tincture was pushed to ninety-six drops without inconvenience, and his pulse fell to forty, yet no intermission was felt; nausea, however, and vomiting after his meals supervened the day after this quantity had been taken; these continued four or five days, and were only alleviated by the omission of the digitalis.

Here therefore, in one instance, one hundred drops, in another ninety-six of the saturated tincture, were, by gradually increased doses, safely introduced into the system of very debilitated patients, before either sickness or irregularity of the circulation appeared; and even then these symptoms proved of little moment, as the first was speedily removed, and the second produced no inconvenience. During this period all the symptoms of irritation and fever, cough, pain, and dyspnœa daily grew better, and at length altogether retired. On the quantity and quality of the expectorated matter, the digitalis soon exerted a most remarkable effect, either promoting its absorption, or diminishing its secretion, or perhaps both, in a rapid manner, whilst at the same time it deprived it of its fœtor.

What, however, I consider as of most importance in these cases, and to which, perhaps, we are alone indebted for a cure, is the demonstration of the possibility of retarding the circulation for weeks together, by the use of this medicine. In Mr. Marris's case the pulse never rose beyond fifty from July 12th to August 15th, nor in Mr. Grimes's from September 17th to October 8th! How greatly every salutary purpose, every curative intention, must have been forwarded by this permanent depression of the circulating powers, must be obvious to every medical reader, nor will the limits of a letter allow me to expatiate further on the subject; I shall only add, that the theory laid down, and the facts now given, will, if I mistake not, mutually illustrate each other.

One circumstance of disparity in the two cases as to the ope-

ration of the digitalis, should be mentioned; it being necessary with Mr. Marris, after the pulse had sunk to forty-four, daily to persist in the use of a dose of the tincture, to maintain the depression; and one day when the pulse was below fifty, from a wish to ascertain the result, the two doses of the tincture were omitted, and the pulse next morning beat 112; whereas in Mr. Grimes's case, though the digitalis was entirely omitted on the 24th of September, in consequence of the nausea, on the 2d of October the pulse had not risen beyond 48.

The activity of this medicine is so great, that in cases where much debility is present, the constant attendance of a person well apprized of its mode of operation and effects, should be considered as absolutely requisite. Though Mr. Marris was at some distance from me, and I had not an opportunity of seeing him daily, yet was I free from any anxiety on that account, as the gentleman with whom he resided, the Rev. John Hildyard, of Monks-Eleigh, was not only well versed in medical science, but paid the most unwearied attention, both to the progress of the symptoms, and the exhibition and effects of the tincture.

I may, I think, without hesitation affirm, that an early exhibition of the saturated tincture in consumption, will in general prove successful; and even when the disease is far advanced, provided the patient has but strength sufficient left to endure a gradual depression of the circulation, a result equally fortunate may be expected. That this can be done, even in circumstances of debility, to an extent adequate to effect a cure, and without either sickness, languor, or loss of appetite, the cases now appended will satisfactorily attest. I have only to wish, Sir, they may contribute somewhat toward promoting the great and humane design in which you have so long and so laudably been engaged.

I am, Sir, with great respect, &c.

NATHAN DRAKE.

Hadleigh, Suffolk, Feb. 21, 1799.

Letter from Dr. FOWLER, *of Salisbury, on the Cure of Consumption.*

I send you (to dispose of as you may think proper) the result of most of the trials which I have hitherto made of the digitalis in cases of pulmonary consumption. As I began to give it more from a dissatisfaction with the remedies usually employed in this disease, than from any very sanguine expectation of success, I took no notes of many of the cases in which I first used it. With

respect to these I can therefore supply you with little more than the dose of the medicine, and its more prominent effects.

Observing, however, that it in no case did harm; that, on the contrary, it almost uniformly relieved the most distressing symptoms of the disease; and that in some it appeared even to have effected a cure, I began to collect, as carefully as I could, all the material circumstances of the cases in which it had been given; and the instances of its good effects, which I am now to lay before you, will, I hope, induce you to avail yourself of the many opportunities which must occur to you, for giving this subject a full and accurate investigation.

As I had frequently seen large doses of the digitalis given by others, and had myself still more frequently given it in dropsical cases, without ever observing any of those uncontrollable and dangerous effects which are said to deter many from its use, my mind was perfectly at ease as to its probable effects in phthisis, and the more so as its power of repressing arterial action, and inducing debility, from which we have most to apprehend in dropsy, was the very quality from which, properly directed, I hoped to derive most advantage here.

My attention was indeed first directed to it as a remedy likely to be useful in phthisis, by its almost uniform effect of rendering the action of the arteries more slow than natural, at the same time that it appears to excite that of the absorbents. It has long been known, that diseased parts of the body may be removed by depriving them of all supply of blood from the arteries; and it is now known, that where this cannot with safety be attempted to so full an extent, on account of the intimate connection subsisting between the part to be removed, and such as we wish should remain, that the same effect may be produced by diminishing to a certain degree the arterial supply of the part, at the same time that we leave the action of the absorbents in full force. This is the purpose so ably effected by Mr. Hunter's scientific operation for the cure of popliteal aneurism: and I confess that I was not, and that I still am not without hope that something analogous to this may be effected by the operation of digitalis on tubercles in the substance of the lungs. But my expectations of success had a better foundation than reasoning *à priori*.

There was good ground to believe that Dr. Darwin had cured one case of phthisis by a strong decoction of digitalis.

Dr. Ferriar had certainly cured by an infusion of this plant four cases of hæmoptoe, a disease nearly connected with consumption; and in a note to p. 18 of his second volume, he says expressly, that he has "repeatedly stopped the progress of incipient consumption by administering digitalis, when the patient was too much weakened by preceding disease to bear the usual methods of lessening the impetus of the circulating system."

Dr. Withering's opinion of it (notwithstanding his expressed wish that it may be further tried in this disease) was not, it is true, very encouraging; but it should be recollected, that even with him it succeeded completely in one case (No. cxx.), that it relieved another (No. xl.) very far advanced, and that the remaining cases in which it was given by him were lost before recourse was had to the digitalis.

Case 1. The first case of consumption, in which I had an opportunity of observing the effects of digitalis, was in a girl received into the Stafford infirmary, under the care of my friend Dr. Edward Alexander, at the beginning of the year 1794. I have no notes of this case, but I perfectly recollect that her symptoms impressed both of us with the opinion of its being incipient consumption. Her cough was particularly troublesome, and her pulse very quick. The suggestion of the digitalis, I believe, came from me. She took it in powder, I think gr. i. two or three times a day. Her recovery was so rapid, and apparently complete, as not a little to please and surprise both of us. What afterwards became of her I had no opportunity of knowing.

The following cases of out-patients, for whom I had prescribed the digitalis at the Salisbury infirmary, are by no means so full and detailed as I could wish them; but the unfavourable circumstances under which medicines are administered to this very indigent class of patients, their exposure to causes perpetually counteracting the effects of remedies, and renewing their complaints, together with the irregularity of their attendance, held out but little encouragement to note down the history of each individual's disease at the time I began to give the digitalis. Finding, however, that all of them gave a favourable report of the effects of this remedy, that it uniformly freed them from the sensation of oppressive tightness about the chest, quieted their cough, rendered the pulse more slow, and, wherever hectic fever and profuse night sweats had taken place, put a stop to them;

I endeavoured to aid my own recollection of them by the best accounts which I could collect from themselves. The doses of the remedies, and the periods during which they were used, are accurately transcribed from the books of the infirmary.—*Then follow the cases, which it would be needless here to detail; they may be seen in Contributions to Physical and Medical Knowledge, principally from the West of England, collected by Dr. Beddoes.*

The late Dr. Beddoes, in relating his own experience, says: In five cases of imminent or incipient consumption, the use of digitalis has either removed the complaint, or, by producing the most decided good effects, affords hope of success.

A young lady, with light eyes and hair, of very feeble conformation, narrow chested, with elevated shoulder blades, and a very quick pulse, complained of a hard cough, which had succeeded to a short hecking cough, of shooting pains in the chest, and more fixed pain in the left side, shortness of breath, chilliness, and evening feverishness, succeeded by night sweats. She had lately begun to expectorate, but I was not permitted to see the expectoration. Small doses of digitalis continued for three weeks, commonly at the rate of three grains of the powder in the twenty-four hours, removed all these symptoms. No sickness was produced; on the contrary, the appetite was restored under the use of the medicine.

Two other cases, nearly similar, terminated equally favourably: only that in these sickness was produced; in one by twenty-eight drops of the tincture, in the other by thirty-five; and it was necessary to keep the doses between twenty and thirty.

Two other cases are in progress, continues Dr. Beddoes, and shall be fully related hereafter. In one the attack was by far the most severe I have ever known. After a hard cough attended by decline of flesh and strength, constant indisposition, distinct evening fever-fit, with pulse at 130, but no expectoration, a most violent pain seized the left side, which rendered coughing excruciatingly painful. The patient's habit, weak pulse, and general loss of strength, appeared to me to prohibit general bleeding; and topical was resisted. I trusted, therefore, to the tincture of digitalis. This in a month has removed the cough entirely; has much reduced the evening exacerbation of fever, which in spite of two doses of the tincture raises the pulse to 90, though it be 60 in the morning. The pain of the side continues, and mixes a good deal of anxiety with hope. It is however less.

The dose was gradually raised from fifteen to thirty drops twice a day; but thirty produced bilious vomiting. More than twenty cannot be taken without considerable nausea, vertigo, or indistinctness of vision. In all these cases except the first, I found it impossible to avoid great nausea, and to keep the pulse below 80. It would be 50 in the morning, and near 100 in the evening. I suspect that in people of feeble habit, the digitalis will lose its effect on the pulse sooner than in others; and I suppose the above hypothesis applicable to the fact.

No other medicine, except an occasional aperient, was prescribed. Great sleepiness seemed the gradation between the ordinary state and depression. The patient observed that it was "the most sleepy thing she had ever taken."

The other case now in progress is probably not a case of tubercular consumption. The rest I take to be certainly so; and I apprehend the great efficacy of the digitalis will be experienced in tubercular consumption.

As far as my own experience has gone, which has been very extensive, this remedy I have found surpass all others in spitting of blood, as well as in consumption, measles, and scarlet fever.

3. *In anasarcous and dropsical effusions.*

That a medicine so powerfully instrumental in retarding the circulation, so liable to produce oppressive sickness, together with pain and giddiness in the head, should have been frequently attended with alarming effects, and esteemed by many even as an absolute poison, is not to be wondered at, especially when it is considered that among the poor, where it was at first chiefly used, its incautious exhibition would naturally lead to this conclusion. Even Ray, Boerhaave, and Haller, mention its operation as generally deleterious; what, however, is truly extraordinary, none of the old writers, nor any of the moderns, I believe, previous to the year 1770, have mentioned its peculiar property as a diuretic, confining themselves principally to its administration in epilepsy and scrophulous ulcerations. Yet whilst the digitalis was generally known in these disorders, although seldom regularly practised, yet its diuretic effects were wholly overlooked; and Dr. Withering has the undoubted claim of having first noticed this virtue; and the numerous cases related by him, and since by other practitioners, have afforded incontestable evidence of its curative virtues in these disorders. From a very extensive experience he draws the following conclusion: It seldom succeeds in men of great natural strength, tense fibre, warm skin, florid complexion, or with a tight cordy pulse; on the contrary, the pulse must be feeble or intermitting, the countenance pale, the lips livid, the skin cold, the swollen belly soft and fluctuating, the anasarcous limbs readily pitting under the pressure of the finger. Under these circumstances the digitalis seldom fails of producing a cure, but seems peculiarly adapted where there is water in the chest.

This eminent physician prefers the leaves to the other parts of the plant, and directs that the stalks and midribs of the leaves should be thrown away, and that the remaining part should be carefully dried either in the sun or before the fire; and he says, that if they be well dried, they rub down into a fine powder of a beautiful green colour; and that they may be either given in substance or in infusion—when given in substance, the dose is from one to three grains, either by itself or mixed with aromatics, or made up into pills with soap or with gum ammoniac.

When it is given in infusion, a drachm of the dried leaves is to be infused for four hours in eight ounces of boiling water, and then the liquor to be strained through a cloth, and an ounce of any spirituous water is to be added to it. An ounce of this infusion is a mean dose for an adult person, which may be repeated twice in the day, or once in eight hours; though with some particular patients one dose is sufficient in the day. Dr. Withering observes, that when the foxglove is given in large doses, frequently repeated, it occasions sickness, vomiting, purging, giddiness, confused vision, an increased secretion of urine, and sometimes an inability to retain it; a slow pulse, so as not to beat above thirty-five strokes in the minute; cold sweat, and even syncope: when given in small doses he has found it produce many of these symptoms, but in a slighter degree.

Sometimes the sickness does not take place till hours after the exhibition of the medicine; the discharge by urine at times accompanies the sickness; at other times it is checked by it; and sometimes it does not come on till some days after.

The sickness occasioned by the digitalis is different from that occasioned by other medicines; after ceasing, it will return by intervals as violent as before, for three or four days.

Dr. Withering further observes, that when adults take either the infusion or the powder, its use ought to be continued till it acts either upon the kidneys or the stomach, or the bowels or

the pulse; but that as soon as it affects any of these organs, its further use ought to be stopt; by which means the patient will neither suffer from its exhibition, nor the practitioner be disappointed in his expectations.

During its operation the patient should drink freely; and if the water of the dropsy should be evacuated quickly, and in large quantity, in anasarcous and ascitical cases, it becomes necessary to put bandages round the patient's body, in order to make a proper compression; and when distressing sickness arises, the confectio cardiaca, spiritus Mindereri, infusions of mint, and of other aromatics, joined to the use of gentle opiates, are the best remedies.

Dr. Darwin, whose account of the effects of this herb has been since published in the third volume of the London Medical Transactions, used a decoction in place of an infusion of it. His decoction was made by boiling four ounces of the fresh green leaves from two pints (lib. ii.) to one, adding to it when strained two ounces of vinous spirit. Of this decoction the doctor in dropsical cases ordered the patient to take half an ounce early in the morning, and to repeat the dose every hour till he had taken eight or nine, or till sickness or some disagreeable sensations were induced. The hydropic fluid generally disappeared the next day, or the day following it, without any repetition of the medicine, frequently without any apparent increased evacuation; at other times with vomiting, and a large flow of urine; and sometimes with purging stools. Some robust people took a spoonful and a half, or two spoonfuls; but as some of them complained of very great debility during its operation, it was esteemed more prudent to use an under-dose, than to run the risk of over-dosing it.

The dropsical patients whom Dr. Darwin treated were mostly past the meridian of life, and had habituated themselves to drinking too great a quantity of fermented or spirituous liquors. Some of them had no return of the disorder; others relapsed, and were obliged to have recourse to the same methods three or four different times in the space of a year or two, when generally a less quantity of the digitalis answered than at first. On the day after the exhibition of the digitalis, or on the day following that, if the sickness was gone, the doctor ordered his patients to take, twice in the day, either some of an infusion of the stems of artichokes, or of a decoction of the bark, with a small quantity

of some chalybeate medicine; and to take a grain of opium every night at bed-time, with so much rhubarb or aloe as might induce a stool daily; and the patients were exhorted to persist for some weeks in the regular use of opium, without increasing or diminishing the dose, as it seemed to be particularly advantageous to them.

Dr. Ash, who formerly practised at Birmingham, and who had often given the digitalis, told me, that he used to order a drachm and a half of the leaves of this plant to be infused, for four hours, in eight ounces of boiling water; and an ounce (or two table-spoonfuls) of the strained liquor to be taken once in four hours, in the dropsy.

Great apprehensions were at first entertained of this remedy; but from extensive experience I can assert, that we seldom find any of those very alarming circumstances said to be attendant on this remedy. Where a sudden sinking takes place, it is from the loss of tension in dropsical patients, as those experience who have been tapped in delivery at child-birth, and for the want of bandages to supply the place of the distension of water. In a patient who had an ague for two years, I ordered a tea-spoonful of the tincture every four hours, until some effect should be induced, when three ounces were first taken; and Mr. Brown, of Muscovy Court, for violent palpitation of the heart, took three ounces without feeling any sensible effect. Seeing common people buy the herb at Covent Garden, and boil a whole handful for one dose in cases of dropsy, yet survive and become cured, I have ceased to look upon this remedy in the class of our dangerous poisions.

4. *In palpitation of the heart, and aneurism.*

As might be expected, no remedy succeeds so well in these distressing cases as the digitalis. It alleviates the symptoms, and, properly administered, would prolong life even where it does not produce a cure.

5. *In water on the brain* (hydrocephalus).

The digitalis seems applicable in this disease, and answers a two-fold purpose, by lowering the action of the heart, and promoting absorption. By the application of æther to the head every hour, which by evaporation creates a great degree of cold, and the administration of the digitalis, we have cured the most alarming cases of this fatal disease, even when convulsions and strabismus (squinting) have supervened.

6. *In mania, arising from an effusion of water on the brain.*

7. *In spasmodic asthma.*

In this disease the greatest advantage has been produced, probably by producing absorption, and strengthening the habit, for the digitalis acts as a tonic.

8. *In scrophulous tumours.*

It was in this disease that the digitalis first acquired its reputation. Haller reports, that a scorbutic leprosy was cured by a long use of this plant, and that Zeyter, by bruising its flowers along with lard, has cured glandular tumours, and that a deplorable case of evil yielded to this remedy. The expressed juice mixed with linseed meal I have tried with success as a topical application in several cases, when the medicine was also given internally.

9. *In epilepsy.*

The ancient opinion of this disease often yielding to the use of the digitalis seems confirmed by modern experience. Where this disorder has been induced by a determination of blood to the head, we have succeeded in removing this afflicting disorder.

PREPARATIONS.

Infusion of Foxglove. (Infusum Digitalis Purpureæ. E.)

Take of dried leaves of foxglove, one drachm;
——— boiling water, eight ounces;
——— spirit of cinnamon, one ounce:
Macerate for four hours, and filter.

This is the infusion so highly recommended by Withering. Half an ounce, or an ounce of it, may be taken twice a-day in dropsical complaints.

Decoction of Foxglove. (Decoctum Digitalis. D.)

Take of foxglove leaves, dried, one drachm;
——— water as much as will furnish a strained decoction of eight ounces, by measure:
Place the vessel upon a slow fire, and as soon as the liquor boils remove it. Digest for a quarter of an hour, and strain.

This decoction, according to the proportion employed, is twenty times weaker than that so much praised by Dr. Darwin; but with a medicine of so great activity, it is an advantage to be able to regulate the doses easily; and it is probable that the strength of decoctions is not increased in proportion as the quantity of the menstruum is diminished.

Tincture of Foxglove. (Tinctura Digitalis Purpureæ. E.)

Take of the dried leaves of foxglove, one ounce;
——— diluted alcohol, eight ounces:
Digest for seven days, and strain through paper.

Tincture of Foxglove. (Tinctura Digitalis. D.)

Take the leaves of foxglove (not large ones), dried, and in coarse powder, two ounces;
——— proof spirit, one pint:
Digest for seven days, and filter.

This tincture is a very powerful medicine, and contains the virtues of the foxglove in a very manageable form. Like every other form in which foxglove is given, except in scarlet fever, it should be given in very small doses at first, such as from ten to twenty drops, and cautiously increased.

When the digitalis is disposed to excite looseness, opium may be advantageously conjoined with it; and when the bowels are tardy, jalap may be given at the same time, without interfering with its diuretic effects. During its operation in this way, the patient should drink very freely. Two cases of phthisis are related by Dr. Gregg, in which it produced a copious ptyalism. In those cases where we administered the foxglove in scarlet fever above recorded, a most copious ptyalism was generally produced.

PRESCRIPTION.

℞. 1. Take of the powder of foxglove - - grains 6,
——— compound powder of tragacanth, drachm 1:
Make into a powder, which divide into six parts, of which take one twice a day.

℞. 2. Take of the powder of foxglove - grain 1,
——— conserve of hips - - - drachm ½:
Make into a bolus, send at the same time three or four others. One is to be taken night and morning.

℞. 3. Take of the powder of foxglove - - grains 10,
——— compound powder of tragacanth, drachm ½,
——— opiate confection, as much as is sufficient:
Make into ten pills, of which take one three times a day.

℞. 4. Take of the dried powder of foxglove, drachm 1,
——— boiling water, a pint:
Macerate for a quarter of an hour, then strain; add to the strained liquor two ounces of the compound tincture of cardamoms. The dose is two table-spoonsful three times a day.

COMMON SCURVY-GRASS.

COCHLEARIA OFFICINALIS.

Class XV. Tetradynamia. *Order* I. Siliculosa.

Essent. Gen. Char. *Silicle* emarginate, turgid, scabrous: *Valves* gibbous, obtuse.

Spec. Char. *Radical Leaves* cordate-subrotund: *Stem Leaves* oblong, somewhat sinuate.

DESCRIPTION.

This plant reaches five or six inches in height. The radical leaves are fleshy, and stand upon long footstalks; those of the stem are sessile, alternate, dentated with large teeth. The flowers are white, terminating the branches in thick clusters. The pod is nearly globular, containing several rough seeds.

HISTORY.

Found on the mountains of Wales, and in Scotland; also near the sea shore: flowers in April and May.

MEDICAL VIRTUE.

We have the testimony of its great use in scurvy not only by physicians but navigators, as Anson, Linscoten, Maaertens, Egede, and others. Forster found it in abundance in the islands of the South Sea. It produces an essential oil, so ponderous as to sink in water. It should be eaten as salad, or the expressed juice mixed with some convenient vehicle.

PREPARATIONS.

Compound Juice of Scurvy-Grass. (Succus Cochleariæ Compositus. L.)

Take of juice of garden scurvy-grass, two pints;
——— brooklime,
——— water-cresses, of each one pint;
——— Seville oranges, twenty ounces, by measure:
Mix them, and, after the fæces have subsided, pour off the liquor, or strain it.

Edin.

Take of juice of scurvy-grass,
——— water-cresses, expressed from fresh-gathered herbs,
——— Seville oranges, of each two pounds;
——— spirit of nutmegs, half a pound:
Mix them, and let them stand till the fæces have subsided; then pour off the clear liquor.

Both these compositions are of considerable use for the purposes expressed in the name: the orange juice is an excellent assistant to the scurvy-grass, and other acrid antiscorbutics, which, when thus mixed, have been found from experience to produce much better effects than when employed by themselves. They may be taken in doses, from an ounce or two to a quarter of a pint, two or three times a day; they generally increase the urinary secretion, and sometimes induce a laxative habit.

The juices of succulent plants are obtained by expression. They are of a very compound nature, consisting of the sap, the secreted fluids, and fæcula, mixed together. When first procured they are very high coloured, turbid, and loaded with parenchymatous matter. They may be purified by rest, filtration, heat, and clarification. Rest may be employed with juices which are very fluid, do not contain volatile matter, and are

not susceptible of alteration, and with sub-acid juices, as that of lemons. By rest these undergo a kind of slight fermentation, and all their mucilaginous and other viscid parts separate. Filtration is perhaps the most perfect means of defecation, but it is tedious, and applicable only to very fluid juices. In many instances it may be facilitated by the addition of water. The action of heat is more expeditious, and is employed for juices which are very alterable, or which contain volatile matters. It is performed by introducing the juice into a matrass, and immersing it in boiling water for some minutes. The feculæ are coagulated, and easily separated by filtration. Clarification by white of egg can only be used for very viscid mucilaginous juices, which contain nothing volatile. The white of two eggs may be allowed to each pint of juice. They are beat to a fine froth, the juice gradually mixed with them, and the whole brought to ebullition. The albumen coagulating, envelops all the parenchymatous and feculent matters, and the juice now passes the filter readily. By this process juices are rendered sufficiently fine; but the heat employed deepens their colour, and manifestly alters them, so that it is not merely a defecating but a decomposing process. When depurated, juices are yellow or red, but never green.

The fluids thus extracted from succulent fruits, whether acid or sweet; from most of the acrid herbs, as scurvy-grass and water-cresses; from the acid herbs, as sorrel and wood-sorrel; from the aperient lactescent plants, as dandelion and hawkweed; and from various other vegetables, contain great part of the peculiar taste and virtues of the respective subjects. The juices, on the other hand, extracted from most of the aromatic herbs, have scarcely any thing of the flavour of the plants, and seem to differ little from decoctions of them made in water boiled till the volatile odorous parts have been dissipated. Many of the odoriferous flowers, as the lily, violet, hyacinth, not only impart nothing of their fragrance to their juice, but have it totally destroyed by the previous bruising. From want of sufficient attention to these particulars, practitioners have been frequently deceived in the effects of preparations of this class: juice of mint has been often prescribed as a stomachic, though it wants those qualities by which mint itself and its other preparations operate.

There are differences as great in regard to their preserving those virtues, and this independently of the volatility of the

active matter, or its disposition to exhale. Even the volatile virtue of scurvy-grass may, by the above method, be preserved almost entire in its juice for a considerable time; while the active parts of the juice of the wild cucumber quickly separate and settle to the bottom, leaving the fluid part inert. Juices of arum root, iris root, bryony root, and other vegetables, in like manner allow their medicinal parts to settle at the bottom.

If juices are intended to be kept for any length of time, about one-fortieth part of their weight of good spirit of wine may be added, and the whole suffered to stand as before: a fresh sediment will now be deposited, from which the liquor is to be poured off, strained again, and put into small bottles which have been washed with spirit, and dried. A little oil is to be poured on the surface, so as very nearly to fill the bottles, and the mouths closed with leather, paper, or stopped with straw, as the flasks are in which Florence oil is brought to us: this serves to keep out dust, and suffers the air to escape, which, in process of time, arises from all vegetable liquors, and which would otherwise endanger the bursting of the glasses; or, being imbibed afresh, render their contents vapid and foul. The bottles are to be kept on the bottom of a good cellar or vault, placed up to the necks in sand. By this method some juices may be preserved for a year or two, and others for a much longer time; though, whatever care be taken, they are found to answer better when fresh; and, from the difficulty of preserving them, they have of late been very much laid aside, especially since we have been provided with more convenient and useful remedies.

HORSE-RADISH.

COCHLEARIA ARMORACEA.

Class XV. Tetradynamia. *Order* I. Siliculosa.

Essent. Gen. Char. The same as the last.

Spec. Char. *Radical Leaves* large, lanceolate, crenate: *Stem Leaves* cut, and entire.

DESCRIPTION.

This plant rises two or three feet in height. Radical leaves stand on strong footstalks, those on the stem on scarcely any. Flowers white, terminating the branches in thick clusters, and arising from the axillæ of the leaf.

HISTORY.

Found wild in several parts of England, especially about rubbish and the sides of ditches, commonly cultivated in kitchen-gardens, thriving greatly by its roots, and flowering in May.

MEDICAL VIRTUE.

Dr. Cullen says, I have found that one drachm of the root, fresh, scraped down, was enough for four ounces of water, to

be infused in a close vessel for two hours, and made into a syrup, with double its weight in sugar. A tea-spoonful or two of this syrup, swallowed leisurely, and occasionally repeated, we have often found very suddenly effectual in curing of hoarseness. It may be used in rheumatic affections as a rubefacient. Employed as condiment it stimulates the stomach, and, where much is eaten at a time, promotes digestion. We chiefly use it with roast beef, which is occasionally very tough. Bergius relates that palsy and scurvy have been cured by swallowing large pieces cut in the form of pills, as mustard-seed is used for the same purpose. I have known a strong decoction of this root drunk as an emetic, and relieve pituitous asthma more than any other means. This plant should be much used with all phlegmatic habits in diet, especially such as are afflicted with the dropsy.

OFFICINAL PREPARATION.

Compound Spirit of Horse-Radish. (Spiritus Raphani Compositus. L. D.)

Take of fresh horse-radish root,

—— dried outer rind of Seville oranges, of each, two pounds;

—— fresh herb of garden scurvy-grass, four pounds;

—— bruised nutmegs, one ounce;

—— proof spirit, two gallons;

—— water, sufficient to prevent empyreuma:

Draw off two gallons.

This is an aromatic acrid spirituous liquor, and was formerly thought to have high antiscorbutic properties.

COMMON BLACK MUSTARD.

SINAPIS NIGRA.

Class XV. Tetradynamia. *Order* II. Siliquosa.

ESSENT. GEN. CHAR. *Calyx* spreading: *Claw* of the *Petal* straight: *Glands* betwixt the shorter stamina and the pistillum, and betwixt the long and the calyx.

SPEC. CHAR. *Silique* smooth, pressing on the stem.

DESCRIPTION.

THIS plant rises three feet. Leaves near the root large, irregularly heart-shaped, and pinnatifid or lobed at the base; those on the branches narrow, pointed, entire. Flowers terminate the branches, of a bright yellow.

HISTORY.

Common in corn-fields and banks of ditches, is cultivated for use, and flowers in June. There are two kinds; the common black mustard, having blackish seeds, and the white, which has lighter seeds, but they do not differ in qualities. White mustard-

seed, when mixed with water, sends out very volatile, pungent effluvia. It abounds with oily, gum-resinous, and earthy fixed parts; its oil, got by expression, is almost as mild as that procured from sweet almonds.

MEDICAL VIRTUES.

It is given as a warm, cordial medicine, in cold phlegmatic habits, where there is too much viscid phlegm; and in chronic diseases, where there is too languid a circulation. It sometimes proves a strong diuretic; and we have an instance, related by Dr. Mead, where the waters of a dropsy were all evacuated by urine, from taking a spoonful of the unbruised mustard-seed twice a day. It is likewise prescribed in this form as a warm cordial medicine in palsies; and has had a good effect in chronic rheumatism, when taken in the same way. Bruised mustard-seed, or its flowers, mixed with warm water, proves a speedy and safe emetic, and is often used as such in paralytic cases.

PREPARATIONS.

MUSTARD CATAPLASM. (Cataplasma Sinapeos. L. D.)

Take of mustard-seed, powdered,
——— crumb of bread, of each half a pound;
——— vinegar, as much as is sufficient:
Mix, and make a cataplasm.
(Sinapisms may be made stronger by adding of horse-radish, scraped, two ounces, D.)

Cataplasms of this kind are commonly known by the name of sinapisms. They were formerly frequently prepared in a more complicated state, containing garlic, black soap, and other similar articles; but the above simple form will answer every purpose which they are capable of accomplishing. They are employed only as stimulants: they often inflame the part, and raise blisters, but not so perfectly as cantharides. They are frequently applied to the soles of the feet, in the low state of acute diseases, for raising the pulse and relieving the head. The chief advantage they have, depends on the suddenness of their action.

COMPOUND PLASTER OF SPANISH FLIES. (Emplastrum Meloes Vesicatorii Compositum. E.)

Take of Burgundy pitch,
——— Venice turpentine,

Take of cantharides, each twelve parts;
——— yellow wax, four parts;
——— sub-acetite of copper, two parts;
——— mustard-seed,
——— black pepper, each one part:

Having first melted the pitch and wax, add the turpentine, and to these, in fusion, and still hot, add the other ingredients, reduced to a fine powder, and mixed, and stir the whole carefully together, so as to form a plaster.

This is supposed to be the most infallible blistering plaster. It certainly contains a sufficient variety of stimulating ingredients. Where a quicker action is required, this is a better form than the ordinary blister, but less suited for very irritable skins, or for children.

PRESCRIPTION.

℞. 1. Take of mustard-seed,
——— horse-radish root, of each, drachms 2,
——— boiling water, a pint:

Macerate for two hours, then strain; add to the strained liquor, ginger in powder two drachms, and aromatic confection one drachm, of which take a table-spoonful four times a day, in cold phlegmatic habits, and paralytic disorders.

WATER-CRESSES.
SISYMBRIUM NASTURTIUM.

Class XV. Tetradynamia. *Order* II. Siliquosa.

Essent. Gen. Char. *Siliqua* opening with nearly straight lines: *Calyx* spreading: *Corolla* spreading.

Spec. Char. *Siliques* declining: *Leaves* pinnate, with the pinnæ subcordate.

DESCRIPTION.

A small aquatic plant found in ditches. The stalks are thick, and alternately branched. Stem with angular projections. Leaves alternate, lanceolate, pinnate, having above one pair, and below two to five pair of pinnæ, terminating in an odd one, which is the largest. Pinnæ oblong, irregularly crenate, blunt, opposite, sessile, ovate, obtuse, rarely any veins beneath, of a bright green, those nearest the stem smallest. Lower leaves nearly heart-shaped. Flowers on short terminal spikes, white.

HISTORY.

Common in wet ditches and brooks, where it is gathered by simplers. Professor Martyn, in his Letters on Botany, ad-

dressed to a young Lady, which never can be too much praised, says, We have another instance of fatal confusion, not in two plants of this tribe, but in one of this with another of a different class; namely, of the creeping water-parsnep* with water-cress†, which belongs to the cruciform flowers. You are so well mistress of both tribes, that it is impossible you should mistake them when in flower; but this is not the time when water-cresses are eaten, and this plant is so different in its flowering state, that I am persuaded an eater of it would think himself imposed upon if he were then shown it for water-cresses. When they are both young they are really not unlike; and since they frequently grow together, the one may sometimes be gathered for the other; though I must confess that I have not met with the mistake more than twice, and that only in a single piece among a considerable quantity: however, the leaves of water-parsnep are of a light green; the small leaves composing the whole winged or pinnate leaf are longer and narrower, serrated on the edges, and pointed at the end; whereas those of water-cresses have a tincture of brown upon them, the leaflets are roundish, and particularly the odd one at the end is very large and blunt, and they are none of them regularly serrated, but have only a few indentures on their edges.

MEDICAL VIRTUE.

The admirable author of the Edinburgh New Dispensatory says, Water-cress acts as a gentle stimulant and diuretic; for these purposes the expressed juice, which contains the peculiar taste and pungency of the herb, may be taken in doses of an ounce or two, and continued for a considerable time. It should be at the same time eaten at breakfast, also at dinner, and for supper, to experience benefit from the virtues of this herb. Haller says, We have seen patients in deep declines cured by almost entirely living on this plant. It is reported, he adds, that the juice of this plant snuffed up the nostrils has cured a polypus of the nose. It enters into a composition esteemed famous for curing the scurvy. Vide p. 609.

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* Sium nodiflorum Lin. Fl. Dan. t. 247. Mor. Hist. s. 9. t. 5. f. 3. Eng. Bot. 639.

† Sisymbrium Nasturtium Lin. Fl. Dan. t. 690. Mor. Hist. s. 2. t. 4. f. 8. Ger. 257. 5.

COMMON LADIES-SMOCK, OR CUCKOO-FLOWER.

CARDAMINE PRATENSIS.

Class XV. Tetradynamia. *Order* II. Silquosa.

ESSENT. GEN. CHAR. *Siliqua* bursting elastically with revolute valves: *Stigma* entire: *Calyx* half gaping.

SPEC. CHAR. *Leaves* pinnate: *Radical Pinnæ* nearly round.

DESCRIPTION.

THIS plant rises near a foot, with a smooth and erect stalk. Leaves few; radical ones spreading in an orbicular manner, larger than the stem leaves, and nearly round; both terminate in an odd leaf, which is largest. Flowers in a cluster terminate the stem, upon smooth long flower-stalks, conspicuous, of a delicate blush-red, or whitish purple, delicately veined.

HISTORY.

Common in moist meadows, and producing its flowers in April and May. This is the plant mentioned as a spring flower by our immortal Shakspeare, in Love's Labour Lost:

When daisies pied and violets blue,
And lady-smocks all silver-white,
And cuckoo-buds of yellow hue
Do paint the meadows with delight.

Violets and daisies we know; but the other two have given origin to conjecture. Berkenhout says, I never saw silver white lady-smocks; and the Lychnis flos cuculi is red. Nevertheless the poet might have easily called this flower by that name; for, as Dr. Smith observes, "they are very abundant in the moist part of meadows, and at a distance look like large white patches, resembling the inner female garment hung out to bleach." The cuckoo-buds were either cowslips or butter-cups, which are quite immaterial; but more probably the latter, as these flowers are called cuckoo-buds in Staffordshire.

MEDICAL USE.

It is a warm plant, and has been esteemed to be a powerful diuretic. Galen and many authors allege that it possesses the same virtues as the water-cresses. Dale, in his Pharmacologia, mentions that its flower is recommended in convulsive disorders in a manuscript of Dr. Tancred Robinson's; and Sir George Baker, president of the College of Physicians, has mentioned, in the first volume of Medical Transactions, some nervous and hysteric cases in which he administered the flowers with good effect. The dose is half a drachm to two drachms of the powdered flowers, given twice a day. St. Vitus's dance, and spasmodic asthma, have yielded to these flowers. Dr. Withering says, The virtue of the flowers of this plant in hysteric and epileptic cases was first mentioned by Ray in his Letters, as appears from their publication. They do not act like the Erysimum cheiranthoides, which is called treacle wormseed, from the seeds destroying worms; and thus cure the epilepsies of children by destroying the worms in the stomach and intestines, which is often the cause of fits. I have accounts of the success of this plant in recent cases from good authority, but have never been fortunate enough to see it cure hysterical affections. Whilst in Cornwall, in the year 1793, I had the pleasure of meeting with the Rev. Mr. Gregor, who told me, that the flowering tops of the ladies-smock had been successfully used by his family for some generations in the cure of epilepsies; and some cases, which he mentioned to me were not likely to have proceeded from worms. Dr. Woodville says, In epilepsy this remedy has been generally found unsuccessful. Can this arise from our medical brethren only using the leaves, whereas Mr. Gregor used the flowering tops?

HEDGE MUSTARD.

ERYSIMUM OFFICINALE.

Class XV. Tetradynamia. *Order* II. Siliquosa.

Essent. Gen. Char. *Siliqua* columnar, exactly quadrangular: *Calyx* closed.

Spec. Char. *Siliquas* pressed to the stalk: *Leaves* runcinated.

DESCRIPTION.

Stalk two feet in height. Leaves rough, downy, pinnatifid, segments toothed: teeth large. Flowers small, yellow, placed in long spikes, and numerous at the top.

HISTORY.

Common on dry banks and barren places; flowers from June till September.

MEDICAL USE.

This plant is strongly recommended in chronical coughs and hoarseness. Dr. Cullen recommends for these disorders the juice of the Erysimum mixed with equal quantity of honey and sugar, and a spoonful to be taken frequently during the day. Vide also p. 613, on the syrup of horse-radish.

SAUCE ALONE, OR STINKING HEDGE MUSTARD.

Class XV. Tetradynamia. *Order* II. Siliquosa.
ESSENT. GEN. CHAR. Same as the last.
SPEC. CHAR. *Leaves* cordate.

DESCRIPTION.

STALK three feet in height. Leaves alternate, large, heart-shaped, on footstalks, unequally toothed, veiny. Flowers white, in terminal spikes. Pod two inches long, obscurely quadrangular.

HISTORY.

Common on hedge banks, flowers in May and June: the leaves have a strong flavour resembling that of garlic or onions, and give the same smell to the breath; hence used for the same culinary purposes.

MEDICAL VIRTUE.

The same as garlic, which, when steeped in gin, is taken in dropsy of the chest and anasarca; also in humoral asthma: and Boerhaave says, that used as an external application he cured with it a gangrene of the leg, from a neglected fracture and contusion.

TAMARIND TREE.

TAMARINDUS INDICA.

Class XVI. Monadelphia. *Order* III. Diandria.
ESSENT. GEN. CHAR. *Calyx* four-parted: *Petals* three: *Nectary* two short bristles under the filaments: *Legumen* pulpy.
SPEC. CHAR. None, there being no other species.

DESCRIPTION.

THIS tree rises to a considerable height. The leaves are pinnated, alternate, consisting of usually fourteen pinnæ, which are opposite, and inversely heart-shaped, terminates with two pinnæ. Flowers in lateral clusters, consisting of a coloured calyx of a light straw colour, and three yellow petals, which are beautifully variegated with red veins.

HISTORY.

This tree is a native of both Indies, America, Ægypt, and Arabia, and flowers in June and July. The pulp of the tamarind, with the seeds, connected together by numerous tough strings or fibres, are brought to us freed from the outer shell, and commonly preserved in syrup. According to Long, tama-

rinds are prepared for exportation at Jamaica in the following manner: "The fruit or pods are gathered (in June, July, and August) when full ripe, which is known by their fragility or easy breaking on small pressure between the finger and thumb. The fruit, taken out of the pod, and cleared from the shelly fragments, is placed in layers in a cask, and boiling syrup, just before it begins to granulate, is poured in, till the cask is filled: the syrup pervades every part quite down to the bottom, and when cool the cask is headed for sale." He observes, that the better mode of preserving this fruit is with sugar, well clarified with eggs, till a transparent syrup is formed, which gives the fruit a much pleasanter flavour: but as a principal medicinal purpose of the pulp depends upon its acidity, which is thus counteracted by the admixture of sugar, it would therefore be of more utility if always imported here in the pods. The fruit produced in the East Indies is more esteemed than that of the West, and easily to be distinguished by the greater length of the pods, and the pulp being dryer and of a darker colour.

MEDICAL VIRTUES.

This fruit very much resembles the nature of prunes, but is more acid, and enters as an useful ingredient into the lenitive electuary. It is found of the highest use in the sore throat, as a powerful cleanser, and put into boiling water, until moderately cold, is a delightful drink to persons parched under the heat of fever, and in the lowest stage of putrid fever.

MARSHMALLOW.

ALTHÆA OFFICINALIS.

Class XVI. Monadelphia. *Order* IX. Polyandria.

Essent. Gen. Char. *Calyx* double, the external one nine-cleft: *Arilli* numerous, many-seeded.

Spec. Char. *Leaves* simple, tomentose.

DESCRIPTION.

This plant rises three or four feet high. The leaves are heart-shaped, pointed, irregularly serrated, covered with soft down, and standing upon long footstalks. The flowers are large, consisting of five petals, inversely heart-shaped, of a pale purple. The interior calyx is composed of five pointed segments.

HISTORY.

It is a native of England, and grows common near the sea shore, or about salt marshes; and flowers in August.

MEDICAL VIRTUES.

The dry roots of this plant, boiled in water, give out half their weight of a gummy matter like starch, and on evaporating the aqueous fluid, form a flavourless yellowish mucilage. The

leaves afford scarcely one-fourth of their weight, and the flowers and seeds still less. Decoctions of this plant have been found exceedingly useful where the natural mucus has been abraded from the coats of the intestines; in catarrhs from a thin rheum; in nephritic and calculous disorders; in cases where the lochia have been too thin and sharp after childbirth; in the heat of urine attending gonorrhœas, and in many other cases: however, it ought to be remarked, that we ought not to make these decoctions too thick and viscid, by too long boiling or infusion; for then they become nauseous and disagreeable, and patients cannot be prevailed on to take them in sufficient quantity.

OFFICINAL PREPARATIONS.

Decoction of Marshmallow. (Decoctum Althææ Officinalis. E.)

Take of dried marshmallow roots, bruised, four ounces;
——— raisins of the sun, stoned, two ounces;
——— water, seven pounds:

Boil down to five pounds; strain the decoction, and after the fæces have subsided, pour off the clear liquor.

Marshmallow roots contain nothing soluble in water, except mucilage, which is very abundant in them. This decoction is therefore to be considered merely as an emollient, rendered more pleasant by the acidulous sweetness of the raisins.

Syrup of Marshmallow. (Syrupus Althææ. L.)

Take of fresh root of marshmallow, bruised, one pound;
——— double refined sugar, four pounds;
——— distilled water, one gallon:

Boil the water with the marshmallow root to one half, and press out the liquor when cold. Set it by twelve hours; and, after the fæces have subsided, pour off the liquor. Add the sugar, and boil it to the weight of six pounds.

This is merely a mucilaginous syrup, and is chiefly used in nephritic cases, for sweetening emollient decoctions, and the like.

The common mallow (*malva sylvestris*) has somewhat similar virtues.

COMMON FUMITORY.

FUMARIA OFFICINALIS.

Class XVII. Diadelphia. *Order* II. Hexandria.

Essent. Gen. Char. *Calyx* two-leaved: *Corolla* ringent: *Filaments* two, membranaceous, each with three anthers.

Spec. Char. *Pericarps* with one seed: *Stem* branched.

DESCRIPTION.

This plant rises a foot. The leaves are compound, doubly pinnated; the smaller pinnæ three-lobed, of a pale green. The flowers are of a reddish purple, and grow in spikes, which arise from the axillæ of the leaves. The corolla has the appearance somewhat, and is in reality ringent.

HISTORY.

This plant is common in our corn-fields, and usually flowers in May.

MEDICAL VIRTUE.

Dr. Cullen says, "This plant is a tonic; it is omitted in the London Dispensatory, but retained in ours, and in every other that I know of. I have found it useful in many cases in which

* M. M. vol. ii. p. 77.

bitters are prescribed; but its remarkable virtues are those of clearing the skin of many disorders. For this it has been much commended; and I have myself experienced its good effects in many instances of cutaneous affections, which I would call Lepra. I have commonly used it by expressing the juice, and giving that to two ounces twice a day: but I find the virtues remain in the dried plant, so that they may be extracted by infusion or decoction in water; and the foreign dispensatories have prepared an extract of it, to which they ascribe all the virtues of the fresh plant."

Dr. Rutty, in his Observations on the London and Edinburgh Dispensatories, with an Account of the Virtues of various Subjects of the Materia Medica rejected by one or both of those Works, says, speaking of this plant, "It is justly adopted by the Edinburgh Dispensatory, being possessed of a considerable degree of bitterness and acrimony, and has the sanction of ancient and modern authority for its virtues in cutaneous cases; for which purpose it ought to be given in the juice or infusion in whey, its acrimony being volatile."

RATTLESNAKE ROOT,

OR

MILKWORT.

POLYGALA SENEGA.

Class XVII. Diadelphia. *Order* III. Octandria.

Essent. Gen. Char. *Calyx* five-leaved, two of them wing-shaped, coloured: *Legume* obcordate, two-celled.

Spec. Char. *Flowers* beardless, spiked: *Stem* erect, herbaceous, most simple: *Leaves* oblong-lanceolate.

DESCRIPTION.

This plant rises nearly a foot. Leaves acutely pointed, alternate, on short foot-stalks. Flowers small, white, papilionaceous, terminal.

HISTORY.

Seneka is a perennial plant, which grows wild in North America, particularly Virginia and Pennsylvania. This root is usually about the thickness of the little finger, variously bent and contorted, and appears as if composed of joints, whence it is sup-

posed to resemble the tail of the animal whose name it bears; a kind of membranous margin runs on each side the whole length of the root.

The bark is the active part of the root. Its taste is at first acrid, afterwards very hot and pungent. It has no smell.

Its acrimony resides in a resin; for it is entirely extracted by alcohol; is precipitated by water; does not rise in distillation; and is not destroyed by keeping.

MEDICAL USE.

It is an active stimulus, and increases the force of the circulation, especially of the pulmonary vessels. It has therefore been found useful in typhoid inflammations of the lungs; but it is apt to disorder the stomach, and to induce diarrhœa. Dr. Brandreth, of Liverpool, has derived great benefit, in some cases of lethargy, from an extract of seneka combined with carbonate of ammonia.

Some have likewise employed this root in hydropic cases, and not without success. There are examples of its occasioning a plentiful evacuation by stool, urine, and perspiration; and by this means removing the disease, after the common diuretics and hydragogues had failed.

The Senegaro Indians are said to prevent the fatal effects of the bite of a rattlesnake by giving it internally, and by applying it externally to the wound.

The usual dose of the powder is thirty grains, or more.

Externally it has been advantageously used as a stimulating gargle in croup.

OFFICINAL PREPARATION.

DECOCTION OF SENEKA. (Decoctum Polygalæ Senegæ. E.)

Take of seneka root, one ounce;
——— water, two pounds:
Boil down to sixteen ounces, and strain the decoction.

The virtues of this decoction will be easily understood from those of the root from which it is prepared. The dose in hydropic cases, and rheumatic or arthritic complaints, is two ounces, three or four times a day, according to its effect.

BASTARD CABBAGE TREE.

GEOFFRŒA INERMIS.

Class XVII. Diadelphia. *Order* IV. Decandria.
ESSENT. GEN. CHAR. *Calyx* five-cleft: *Drupe* ovate: *Nut* compressed.
SPEC. CHAR. *Stem* unarmed: *Leaves* lanceolate.

DESCRIPTION.

THIS is a large tree, sending off numerous branches. Leaves pinnated, consisting of several pair of pinnæ, and ending in an odd one. Pinnæ lance-shaped, acute, veined, in pairs, on short footstalks. Flowers in clusters, upon large branched spikes, papilionaceous, of a pale rose colour, terminal, on footstalks.

HISTORY.

The bark of this tree, which grows in the low savannahs of Jamaica, is of a gray colour externally, but black and furrowed

on the inside. The powder looks like jalap, but is not so heavy. It has a mucilaginous and sweetish taste, and a disagreeable smell.

MEDICAL USE.

Its medical effects are much greater than its sensible qualities would lead us to expect. When properly exhibited, it operates as a powerful anthelmintic, especially in cases of lumbrici.

It may be given in different forms, as in decoction, syrup, powder, and extract; and the manner of preparing and exhibiting these is thus stated by Dr. Wright:

"The decoction. Take fresh dried or well preserved cabbage bark, one ounce; boil it in a quart of water, over a slow fire, till the water is of an amber colour, or rather of deep-coloured Madeira wine; strain it off, sweeten it with sugar, and let it be used immediately, as it does not keep many days.

"Syrup of cabbage bark. To any quantity of the above decoction add a double portion of sugar, and make a syrup. This will retain its virtues for years.

"The extract of cabbage bark is made by evaporating the strong decoction in *balneo mariæ* to the proper consistence; it must be continually stirred, as otherwise the resinous part rises to the top, and on this probably its efficacy depends.

"The powder of well-dried bark is easily made, and looks like jalap, though not of equal specific gravity.

"This bark, like most other powerful anthelmintics, has a narcotic effect; and on this account it is always proper to begin with small doses, which may be gradually increased till a nausea is excited, when the dose for that patient is ascertained. But by frequent use we can in common determine the dose, though we choose to err rather on the safe side.

"A strong healthy grown person may, at first, take four table-spoonfuls of the decoction or syrup, three grains of the extract, or thirty grains of the powder, for a dose.

"A youth, three table-spoonfuls of the decoction or syrup, two grains of extract, or twenty grains of powder.

"A person of ten years of age, two table-spoonfuls of the decoction or syrup, one grain and a half of extract, or fifteen grains of the powder.

"Children of two or three years old, a table-spoonful of the decoction or syrup, one grain of extract, or ten grains of the powder. Children of a year old, half the quantity.

"These may be increased, as above observed, till a nausea is excited, which will depend on the strength, sex, and habit of body of the patient.

"Care must be taken that cold water be not drunk during the operation of this medicine, as it is in this case apt to occasion sickness, vomiting, fever, and delirium. When this happens, or when an over large dose has been given, the stomach must be washed with warm water: the patient must speedily be purged with castor oil, and use plenty of lime juice beverage for common drink; vegetable acid being a powerful antidote in this case, as well as in an over dose of opium.

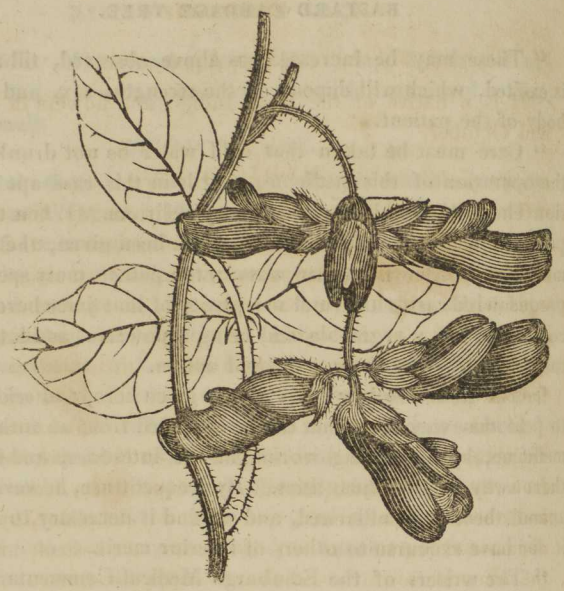
"The decoction is what is mostly given here, and seldom fails to perform every thing that can be expected from an anthelmintic medicine, by destroying worms in the intestines, and bringing them away in great quantities. By frequent use, however, these animals become familiarized, and we find it necessary to intermit it, or have recourse to others of inferior merit.

"The writers of the Edinburgh Medical Commentaries take notice, that the decoction of cabbage bark always excites vomiting. We find no such effect from it here, and may account for it by their receiving it in a mouldy state. A syrup, therefore, is given there with better effect. They observe also that it has a diuretic virtue, which we have not taken notice of here.

"This bark purges pretty briskly, especially in powder, thirty or forty grains working as well as jalap by stool; but in this way it does not seem to kill worms so well as in decoction.

"Five grains of the extract made a strong man sick, and purged him several times; but, by frequent use, he took ten grains to produce at length the same effect.

"It must not be concealed that fatal accidents have happened from the imprudent administration of this bark, chiefly from over-dosing the medicine. But this cannot detract from the merit of the cabbage bark, since the best medicines, when abused, become deleterious; and even our best aliments, in too great quantity, prove destructive. Upon the whole, the cabbage bark is a most valuable remedy, and I hope will become an addition to the materia medica."



COWHAGE.

DOLICHOS PRURIENS.

Class XVII. Diadelphia. *Order* IV. Decandria.

ESSENT. GEN. CHAR. *Vexillum* with two parallel oblong callosities at the base, compressing the wings underneath.

SPEC. CHAR. *Stem* twining: *Legumes* racemed, the valves slightly carinate, and hairy: *Peduncles* three together.

DESCRIPTION.

THE stem is climbing, and twists round neighbouring trees, and so rises to a great height. The leaves are in threes, and stand upon long footstalks, and are placed alternate; each pinna, or leaf, is entire, oval, pointed, smooth above, hirsute beneath. There are two small stipules at the footstalks of the compound leaves. Flowers very large, a deep purple, placed also in threes, upon short peduncles, and form pendent spikes, which arise from the axillæ of the leaves. The vexillum, or standard, is small. The alæ, or wings, extremely large. The carina, or keel, is also long, and furnished on each side with a short spur. The fruit is an oblong pod, in form of the letter *f*.

HISTORY.

It is a native of the West Indies, and flowers in September and October.

MEDICAL USE.

The following account is extracted from Mr. Chamberlaine's admirable "Practical Treatise on the Stizolobium, or Cowhage:"—When from the existing symptoms, all other circumstances considered, it is known, or suspected, that *worms* are the cause of disturbance in the system, it becomes our business to get rid of them as soon as we can, and with as little danger to the patient as possible.

In this view the indications are, first, to administer such medicines as will oblige them to let go their hold, and dislodge them from their situation; secondly, to expel them from the body; and, thirdly, to prevent a return of the complaint, by such medicines and regimen as will invigorate the system, and prevent the accumulation of viscid mucus in the intestines.

Many and various have been the medicines exhibited, and even celebrated, for the expulsion of these intestine enemies.

Bitter purgatives, oily medicines, chalybeates, preparations of tin, iron, and zinc; garlic, hellebore, the root of the male fern, which is the basis of madam Nouffer's celebrated Swiss remedy; drastic and resinous cathartics: the juices of plants celebrated for their anthelmintic qualities, have all had their turn.

Bitters will not prove effectual; for Le Clerc tells us, that he found worms, not only in the liver, but in the gall-bladder itself, of a sheep which he dissected; which were active and lively, swimming in the gall itself, the bitterest of all the secretions.

Oil, which kills all other insects, will not answer here. It is true, it may destroy a few ascarides in the vicinity of the rectum, when administered as a glyster: But how is the oil to be conveyed into the jejunum, or ileum, unaltered, so as to drown the teres, or a tape-worm? The tract of the intestines it has to pass through, and the changes it undergoes before it reaches the seat of worms, render it inert. But we are even told the experiment has been made of putting live teretes into common oil, in which they have lived and moved for several hours.

Practitioners not attached to any particular remedy, among those generally considered as specifics, place dependence on mercurials; but mercury, in all its various forms, has been exhibited

in many millions of real worm cases, without any other effect than injuring the constitution.

If mercury be given at all for the expulsion of worms, the safest way of administering it has always appeared to me to be in small doses of Dimsdale's powder*. But even this is not always effectual. And it is very extraordinary, that where nature has pointed out and supplied us with the noblest and safest anthelmintics, the preparations of art should be substituted, and preferred, though inferior in virtue, and more hazardous in their consequences.

Few or none of the European medicines are equal in efficacy to those vermifuges which the East and West Indies supply us with.

The worm grass is highly commended by many, and is allowed a place among the first anthelmintics, by those who have been accustomed to give it. Its use principally obtains among the free black and mulatto women of Jamaica, who make a livelihood by practising physic among those of their own colour, with the medicinal herbs which nature so abundantly bestows in that climate.

It is the *anthelmia* of Dr. Browne, and the *spigelia* of Linnæus.

The preparations of it are an infusion, decoction, and the clarified juice.

Dr. Browne, who, in his Natural History of Jamaica, gives us the best methods of preparing it, speaks very highly in its praise. Those to whom it is administered are first affected as if with a degree of intoxication. It then procures sleep almost as certainly, and in the same degree, as opium; and the patient's eyes, after the sleep is over, appear sparkling and distended. However, the exhibition of it is not unattended with danger; if the dose be too little it will do no good, and excess in the dose I have known productive of alarming effects.

The *asclepias*, which is the *apocynum erectum folio oblongo* &c. of Sloane, from its emetic quality called bastard or wild ipecacuanha, and by the negroes red-head, is a powerful vermifuge.

The usual way of administering it is, either in a decoction or

* R. calomel, compound powder of crabs claws, of each equal parts, grains 3; tartarized antimony, grain $\frac{1}{2}$ or $\frac{1}{10}$.

the expressed juice of the leaves. Of the former, half a pint is the usual dose to an adult, when intended as an emetic. In the latter form, from a tea-spoonful to three table-spoonfuls may be given as an emetic, according to the age, constitution, and strength of the patient. The expressed juice may also be made into a syrup with sugar. I have known it to bring away worms (after operating as an emetic) from patients in whom there never appeared any symptoms of them. If there are any in the stomach, it certainly dislodges them. When the crude juice is to be administered, I would recommend an addition of an equal or a double portion of lukewarm water with it, which makes it operate more gently, and likewise more effectually.

The bark of the bastard cabbage tree (*Geoffræa inermis*) stands among the first in the list of powerful vermifuges.

It is the bark of a tree, very frequently to be met with in the mountainous parts of Jamaica, which grows to a considerable height. The bark is of an ash colour, sometimes spotted with reddish or iron-coloured spots: the outer thin bark, or epidermis, being peeled off, the inner bark appears, when dry, of a rusty iron colour, and its interior surface of a cineritious hue. Altogether, when stripped off the tree, and kept for use, it is not unlike the eleutheria, or cascarilla bark. The wood of the bastard cabbage tree is exceedingly hard and durable, and much used for the purposes of building, where strength and stability are required. The leaves are oblong, oval, smooth, and of a beautiful green colour, disposed in a pinnate form along the stem.

Of this tree there are said to be two sorts, the male and the female. The bark of that only which is called the female bastard cabbage tree is applied to the purposes of medicine. This latter, in the months of April, May, June, and July, appears most beautifully adorned with very large spikes of papilionaceous blossoms, of a purple colour, which are succeeded by a fruit, of the shape, size, and appearance of a green walnut; being a drupa, containing one oval kernel, inclosed in a hard, smooth, thin shell.

The most usual way of exhibiting this bark is in decoction. About an ounce, or an ounce and a half, grossly powdered, may be boiled in a quart of water, until it is reduced to half a pint. By this time the decoction becomes very high coloured, like old Madeira wine, or porter; but if it should not then at-

tain that colour (which is generally looked on as the criterion of its being properly prepared) the boiling must be continued longer; for in a strong decoction only the efficacy lies.

The taste of this decoction is not unpalatable, nor is it from any bitterness that the bark derives its efficacy, as some have imagined; but from a specific quality, powerfully noxious to all kinds of worms bred in the human body.

The dose to children is from a table-spoonful to a small wine glass full. Adults of a strong constitution may venture on a large wine glass full. Of this decoction a dose proportionable to the age and constitution of the patient is to be given, either simply, or sweetened with honey, sugar, or molasses, for three or four mornings successively.

A dose of some medicine of the purgative kind should be then interposed; such as jalap, rhubarb, sal. glaub., or what is still better, as more immediately answering the intention, an ounce of oleum ricini.

Besides the decoction, this bark has been found efficacious when taken in substance finely powdered. From five grains to a scruple may with safety be ventured on, and even further: combined with jalap, it operates with greater certainty of success than when exhibited by itself.

The ill success of this bark in some cases (continues Mr. Chamberlaine) induced me to make some inquiry concerning a medicine which I had heard of, as being successfully given, in many parts, to all patients afflicted with complaints arising, or supposed to arise, from worms; and that, not only by regular practitioners, but even by ignorant negroes, at random, and without any just proportion in the dose.

This was the Stizolobium, or cowhage.

Satisfied, as I said before, of the *general* efficacy of the cabbage tree bark, I had never given myself the trouble to make inquiry about any other more powerful vermifuge; nor did I think that there could be one more powerful, until the death of a negro girl, evidently occasioned, as appeared upon my opening her, from vast numbers of worms lodged in the small intestines, convinced me that I had not done my duty, and excited me to push my inquiries in search of a more efficacious medicine still further.

I had heard so much of the cowhage, or cowitch, that I resolved to make trial of it.

The substance which is known by this name is the rigid, hairy coat, somewhat in appearance similar to the pile of velvet, or rather plush, of a reddish brown colour, which grows on, or clothes the surface of a pod, in appearance like the pod of our English scarlet bean, to which plant, indeed, the whole of the cowhage vine, both in its foliage and manner of growth, bears a very near resemblance. This hair, or pile, scraped off and mixed in some viscid vehicle, is the part to be employed. The rest of the plant is useless.

But the different modes of exhibiting the cowhage were as various as the persons who took upon them that office. One administered it in molasses. Castor oil was the favourite vehicle of a second; and a third insisted that it was of no service unless mixed with honey.

The greater number agreed in giving molasses the preference; but there was even among these a considerable disagreement with regard to the proportions to be observed in the mixture. While some cautiously put but two pods of the cowhage into a quart of molasses, others boldly stirred up two dozen in a like quantity. Some again would have six pods to be sufficient; and others imagined that some secret virtue, or charm, was to be expected from having the number neither greater nor less, than exactly nine.

By some, the setæ contained on the outside of a single pod, mixed with one or two table-spoonsful of syrup, honey, or molasses, was given for a single dose, without distinction, to young and old. By others, a quantity of each ingredient was mixed together, without bearing any exact proportion to each other further than was merely sufficient to bring the composition to the consistence of an electuary; and one, two, or three tea-spoonsful given as a dose to children, and one, and sometimes two table-spoonsful to adults.

I considered that the wonderful efficacy so generally attributed to cowhage, could not be supposed to arise from any specific medicinal quality residing in it, so much as from the sharpness and elasticity of the setæ, with which the pods are covered, which take the same effect on worms as they do when applied to our skin; the setæ piercing, vellicating, and tormenting them in such a manner as obliges them to let go their hold; acting like so many needles, as may be plainly demonstrated by viewing the setæ through a microscope; which shows them to be a

number of long spiculæ, needle-shaped, hollow, transparent, and armed with points exquisitely sharp and fine.

The idea that their action is merely mechanical, is supported by the observations of several very judicious inquirers, who have made trial of the cowhage, who all agree in the opinion that it acts in the same manner as hair cut fine, and given with the same intention; but much more effectually, because of its inflexibility, and the exquisite and almost inconceivable sharpness of its points.

Curious to know how far the application of the setæ to the external coats of worms bred in the human body would affect those animals when expelled from the body, I waited not long before I had an opportunity of making the experiment.

A calabash full of very large ones, of the teres kind, in full vigour, voided by a poor emaciated patient, was brought to me. Among these I sprinkled some of the setæ. For a minute or two no visible effect was produced; but in a little time they began to writhe and twist themselves in an unusual manner, and exhibited evident signs of extreme torture. I took one of the worms, and, viewing it through a magnifying glass, perceived that several of the setæ had pierced very deep, and others were sticking loosely in various parts of its body, but that none of the spiculæ which had once entered into the skin dropped off.

Convinced in a short time, both from what I had heard, and from my own experiments on the internal exhibition of cowitch, of the safety and efficacy of this incomparable medicine, I laid aside the cabbage tree bark, and for several years have used no other vermifuge than this.

My usual way of preparing and administering the cowhage is in the form of an electuary, with honey, molasses, or syrup of a thick consistence. Formerly I was not in the habit of observing any exact proportion of the quantity of the setæ; but as, since the publication of the former editions of this Treatise, the demand for it has increased beyond my expectations, I have found it necessary to adopt certain formulæ for ascertaining the proportions; which proportions, although I find them in general to answer very well, I nevertheless, in some particular cases, find it necessary to vary, for there never yet existed any general rule to which some exception or exceptions could not be found. After repeated trials and experiments, in the course of five-and-twenty years, (during which period I have been in the constant

constant habit of exhibiting the cowhage as an anthelmintic,) made with a view of finding out the best vehicle for this substance, I cannot say that I have found any less exceptionable than the good old vehicle, common treacle, such as is to be had at every grocer's. I have tried conserves, but children cannot be prevailed on so readily to take them. Honey would not be an incommodious vehicle, but it is not with every stomach honey will agree; for it is well known that in some constitutions violent colicky complaints are brought on by the smallest quantity of honey, or even by drinking any kind of vinous liquor into which honey enters as an ingredient: and there are these advantages in treacle: first, that every body knows what it is: secondly, there are few children who do not like it: thirdly, it is not apt to be spoiled, or to ferment, unless kept in too warm a place: and lastly, it is gently aperient, and, in that view, an auxiliary to the principal ingredient. But if, from a dislike of treacle, some other vehicle would be preferred, raspberry jam or currant jelly will prove very good substitutes.

At the request of some indulgent parents, in order to cheat into compliance such of their children as could not be prevailed on to take any thing that has the appearance of a medicine, I was induced to turn in my mind how to exhibit the cowhage in the form of a lozenge; and after some trials succeeded in fixing on a formula that answers pretty well. It consists of a due proportion of things extremely simple,—sugar, Indian arrow-root, and gum tragacanth; but no efficient article, except the cowhage.

But though I have had many communications of the good effects of the lozenges, I cannot say I place so much dependence on them, or recommend them in my own practice, (unless where I meet with refractory and spoiled children, that are masters and mistresses over their mammas,) as I find the simple electuary, made with nothing but cowhage and treacle, answer every purpose.

Of this electuary, a tea-spoonful is in general found to be a sufficient dose for children from infancy to the age of six or eight; from thence to fourteen, a dessert-spoonful is found to answer well, and for all above that age, a table-spoonful. Formerly I thought it might be sufficient if taken once a day, but experience has shown me that it answers better when taken twice; viz. at night, going to bed, and in the morning, an hour

before breakfast; and though little or no previous medicine is necessary, yet it is generally found to operate more effectually where a gentle emetic (provided nothing forbids it) has been premised.

The cowhage, after being begun upon, is to be continued for three or four days, after which, some brisk purgative, such as jalap, or infusion of senna, or in short whatever purging medicine is known to agree best with the patient, is to be taken; which will in general bring away the worms, if there be any. Afterwards the cowhage is to be continued as long as there may seem occasion, repeating the purgative at intervals of three or four days.

For the tape worm, long experience has taught me, that the cowhage does not prove so effectual as against the other worms, unless the quantity of setæ be doubled. In very obstinate cases I sometimes find it necessary to increase the quantity of setæ even to a threefold proportion; for they will not easily be made to let go their hold, which they are as tenacious of as they are of life.

Every one that knows what cowhage or cowitch is, must be sensible, that if the least particle of it comes in contact with the skin, it causes a most intolerant itching, and sometimes, in very delicate skins, no small degree of inflammation where it fixes. A single bristle of it, so small as to be invisible to the naked eye, is sufficient to cause this inconvenience for a time, but it soon goes off. Microscopic observations show us that the setæ are hollow, and conical, gradually lessening from the base, until they terminate in the finest point that can possibly be imagined.

Here, then, the question may very naturally be asked, "If these finely-pointed spiculæ, when applied externally to any part of the surface of the skin, occasion such tormenting and intolerable itching, sometimes almost even to madness, may there not be danger of injury to the coats of the stomach and intestines from so many sharp swords, as it were, received into the alimentary canal?" To this I answer, not the smallest degree of danger is to be apprehended. The many thousands who have taken it without any ill effect, show its perfect safety. If a little honey, or treacle, be found sufficient to defend the tender nervous papillæ of the lips, fauces, and œsophagus, from the troublesome effects of the setæ, certainly the mucus of the stomach and intestines, which is the guard provided by nature to protect the villous coat of these viscera from injury, will be very sufficient to defend those parts from the irritation of the setæ.—A daughter of my own, when about five years old, contrived to lay hold of a gallypot that contained between three and four ounces of the common preparation of it; and, secreting herself in a corner, made one meal of it—but without any other inconvenience than a smart diarrhœa, which did her more good than harm. I can with truth aver, that I have never met with, in my own practice, any ill effects resulting even from the most liberal use of the cowhage in any form.

We are not to suppose, that after worms have been expelled from the system, the patient is never again to be troubled with them. The same causes existing, which proved favourable to their multiplication in the first instance, will favour their regeneration. We are not therefore to sit down, content with having got rid of our enemies for the present, and with them a great number of bad symptoms which they occasioned, but so to invigorate the constitution as to prevent, if possible, their future attacks. In cases where they have greatly debilitated the system, much attention is required, to enable the patient to recover strength. But, as no practioner whatever can be ignorant of what is necessary to be done on such occasions, to enter into any long discussion, on this part of the subject, would be superfluous. As far as medicine is concerned, the tonic plan will be proceeded on; the Peruvian bark, quassia, and preparations of steel.

The following are amongst the testimonials produced in favour of this remedy.

Letter from Dr. Thornton, *Lecturer on Medical Botany at Guy's Hospital.*

To Mr. Chamberlaine.

Sir, I perceive by an advertisement, that you propose, in the course of next month, to give the world a new edition of your mirable work, on the Stizolobium or cowhage, the Dolichos pruriens of Linnæus. Regularly educated as I have been to physic, and to the science of botany, I could not fail to notice effects said, by so respectable an authority, to have arisen from the use of an exotic plant; and, not to particularize cases, I must beg

leave publicly to declare, that the remedy you have introduced into this part of the world, bids, as far as my experience reaches, the most fair for success, of any, in all cases of worms. Conscious that the vitality of this tribe of beings may differ widely from our own, I have tried, among other remedies, even what others might not have ventured on, even had they supposed good could have arisen. In one case I even ventured upon arsenic to destroy the lumbrici: but the case was that of insanity. In another, to destroy the ascarides, I injected dissolved ice into the rectum: but here the individual had a cancer with this other disease; and life was insupportable. But neither the intensity of cold, or the most powerful mineral poison, produced the cure. In both these cases, other applications failing, I afterwards tried your Stizolobium with advantage. Rough pewter filings have done much good, and are in truth a very rough remedy: but your Stizolobium acts also mechanically, yet not injuriously. The stomach and intestines are sufficiently coated with mucus to be secure of their spiculæ: but the worms which may come into contact with these weapons of offense, are sure to become pierced thereby; and thus wounded, are carried by the peristaltic motion throughout the intestinal tube, and ejected. There are certain juices offensive to different animals. Thus, the expressed juice of the ranunculus, (the common butter cup,) sprinkled over the ground, will bring up all the worms in that spot; and the smell of asafœtida will drive away wild fowl; yet it is a doubt how far any hitherto discovered remedy acts as a destroyer of worms. The fern-root may be eaten in pounds, and therefore, as far as regards us, is inactive, and probably is such with respect to one species of worm, the tænia; but the drastic purge afterwards employed, sometimes removes the enemy. Not so your Stizolobium;—mechanical action we all understand;—and were I sure that we had as yet arrived at the real poison of these reptiles, one not at all detrimental to ourselves, as parsley kills a parrot, and other such facts known to botanists, that I should rather recommend what succeeds *suâ virtute* than what destroys only by mechanical action. In this state of our science, however, I am happy to bear testimony in favour of your West Indian plant; whatever worms it comes into contact with, undefended by the mucus of the bowels or its folds, these it is sure to seize upon and

destroy; and proves in consequence a very safe and desirable remedy, and one extremely worthy the attention of the faculty and the public in general.—I remain, Sir,

With much respect and esteem,
Your faithful obedient servant,
ROBERT JOHN THORNTON, M. D.

No. 1, Hind-street, Manchester-square,
October 24th, 1804.

DR. SQUIRE.

I have, in my own practice, seen many instances of the happy effects of your cowhage, and have the satisfaction to report, that many more have been communicated to me by correspondents, to whom I have recommended it, as a safe and powerful anthelmintick.

The case of my nephew, as communicated to you by the Rev. P. Brodie, of Winterslow, is a very striking one. That young gentleman was supposed to be subject to epileptic fits, the symptoms of that disorder and of worms being in many instances equivocal. I advised a trial of the cowhage, which I procured from you several times, and sent to Salisbury. That trial was attended with the happiest effects. To the best of my recollection, more than 150 large *teretes* were dislodged, and the patient recovered. I consider the cowhage, as a vermifuge, a most valuable remedy, acting mechanically; by which operation it must be less prejudicial to the constitution than the exhibition of drastic purges.

Ely-place, Holborn.

Copy of a Letter from the Rev. P. B. BRODIE, *Rector of Winterslow, near Salisbury.*

TO MR. CHAMBERLAINE.

Sir, A young gentleman in the county of Wilts, at the age of 10 years, had manifest and violent symptoms of worms. We tried several remedies, but had the misfortune to see his body debilitated, his sight very much injured, and the vital functions in general much impaired. His case was communicated to Dr. Squire, who prescribed, and was kind enough to take the trouble of sending to us your medicine; we administered it according to your directions, with a previous emetic.

After some days, he evacuated one worm about three inches

long; and after repeated doses, five more; but besides the emetic, we had given him some physic. After this, we paused awhile, and soon after the recommencement of our operations he produced in one day no less than sixty worms (teretes) of different lengths, from three to sixteen or eighteen inches, all alive, and without any slime. We continued our mode of proceeding, but by some circumstances we were led to imagine that the action of digging assisted our endeavours; we gave the experiment a fair trial, and found that we were more successful when he used that exercise than when he omitted it. Upon the whole, in the course of taking three or four pots of your medicine he evacuated 165 worms, between the sizes above mentioned, but most of them above the average size, and those all alive, and the greater part of them with the spiculæ of the Cowhage sticking in them; besides a great many dead ones.

We flattered ourselves he was quite relieved: but found it requisite within the year to have recourse to you again; he evacuated twenty worms, and has been perfectly well ever since, This is, as far as I recollect, an exact and true account, and if it can serve the public or you to insert it in the next edition of your book, you are welcome to it for that purpose, and to the name also of

Your most humble servant,
P. B. Brodie.
Rector of Winterslow, near Salisbury.

July 23, 1792.

Dr. Underwood.

——But one of the most powerful means, long in use with country practitioners, and of late strongly recommended by Mr. Chamberlaine, is the Dolichos pruriens, variously prepared; but the most simple form, that of giving it mixed up with treacle, is, perhaps, the best of all. It should be taken night and morning for three or four days, and then be purged off with senna tea, or jalap, and this course be repeated as occasion may require.—Underwood on the Diseases of Children, vol. i. p. 149. 2d Edit. 1799.

COMMON LIQUORICE.

GLYCYRRHIZA GLABRA.

Class XVII. Diadelphia. *Order* IV. Decandria.

Essent. Gen. Char. *Calyx* two-lipped. *Legumen* ovate, compressed.
Spec. Char. *Legumes* smooth. *Stipules* none. *Pinnæ* petioled, ending with an odd one.

DESCRIPTION.

The root is round, and runs to a very considerable extent. The stems rise five feet or more. The leaves are pinnated, alternate, composed of several pair of pinnæ, which are ovate, blunt, veined, of a pale green. Flowers papilionaceous, standing nearly erect, on long spikes.

HISTORY.

Liquorice is a perennial plant, a native of the south of Europe, and flowers in August; but the roots, which are raised for medical purposes in considerable quantities in England, are preferred to those imported from abroad, which are very fre-

quently mouldy and spoiled. The roots are very long, about an inch thick, flexible, fibrous, externally of a brown colour, internally yellow, and, when fresh, juicy. Their taste is very sweet, combined with a slight degree of bitter when long kept in the mouth. They are prepared for use by peeling them, cutting away all the fibres and decayed parts. It is necessary to preserve them in a very dry place, as they are extremely apt to spoil.

The powder of liquorice usually sold is often mingled with flour, and perhaps also with substances not so wholesome. The best sort is of a brownish yellow colour, the fine pale yellow being generally sophisticated, and it is of a very rich sweet taste, much more agreeable than that of the fresh root.

Neumann got from 960 parts of dried liquorice, 300 alcoholic extract, and afterwards 210 watery; and inversely, 540 watery, and only 30 alcoholic. The original alcoholic extract is the sweetest.

MEDICAL USE.

Its predominant constituents being saccharine and mucilaginous matter, its only action is that of a mild demulcent, and as such it is frequently used in catarrh, and in some stomach complaints, which seem to arise from a deficiency of the natural mucus, which should defend the stomach against the acrimony of the food, and the fluids secreted into it.

On account of its bulk it is rarely exhibited in substance, but more frequently in infusion or decoction.

OFFICINAL PREPARATIONS.

Extract of Liquorice. (Extractum Radicis Glycyrrhizæ glabræ.)

The liquorice root is to be boiled, in eight times its weight of water, to one half; the liquor is then to be expressed, and, after the fæces have subsided, to be filtered; it is then to be evaporated, with a heat between 200° and 212°, until it becomes thickish; and, lastly, it is to be evaporated with a heat less than 200°, and frequently stirred, until it acquire a consistence proper for forming pills. This is made into little pastils or flat cakes, oftentimes bearing the impression of the places where they are made; and a bit now and then put into the mouth takes off the tickling of a cough. It should be sucked to make it pleasant, as much of the juice taken at the time is unpleasant.

Troches of Liquorice. (Trochisci Glycyrrhizæ. E.)

Take of extract of liquorice;
——— gum arabic, of each, one part;
——— white sugar, two parts:
Dissolve them in warm water, and strain; then evaporate the solution over a gentle fire till it be of a proper consistence for being formed into troches.

Troches of Liquorice. (Trochisci Glycyrrhizæ. L.)

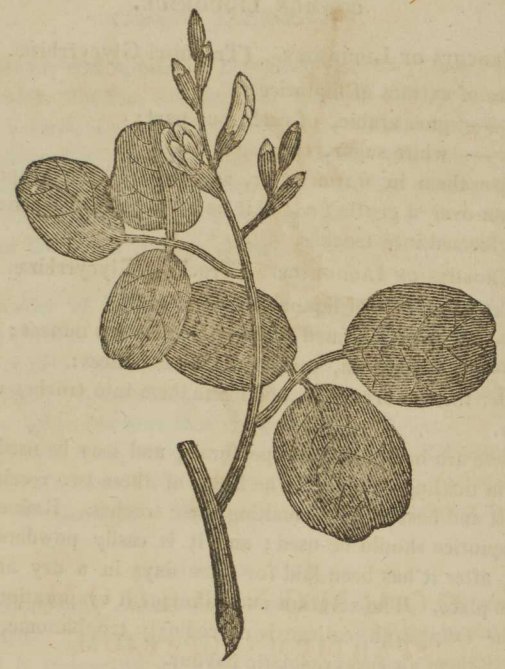
Take of extract of liquorice;
——— double refined sugar, of each, ten ounces;
——— tragacanth, powdered, three ounces:
Powder them thoroughly, and make them into troches with rose water.

These are both agreeable pectorals, and may be used at pleasure in tickling coughs. The latter of these two receipts is the easiest and best mode of making these troches. Refined extract of liquorice should be used; and it is easily powdered in the cold, after it has been laid for some days in a dry and rather warm place. The solution and subsequent evaporation directed by the Edinburgh college is exceedingly troublesome, and apt to give them an empyreumatic flavour.

Liquorice Troches with Opium. (Trochisci Glycyrrhizæ cum Opio. E.)

Take of opium, two drachms;
——— tincture of Tolu, half an ounce;
——— common syrup, eight ounces;
——— extract of liquorice, softened in warm water,
——— gum arabic, in powder, of each five ounces:
Triturate the opium well with the tincture, then add by degrees the syrup and extract; afterwards gradually mix in the powdered gum arabic. Lastly, dry them so as to form a mass, to be divided into troches, each weighing ten grains.

These directions for preparing the above troches are so full and particular, that no further explanation is necessary; seven and a half, contain about one grain of opium. These troches are medicines of approved efficacy in tickling coughs depending on the irritation of the fauces. Besides the mechanical effect of the viscid matters in involving acrid humours, or lining and defending the tender membranes, the opium no doubt must have a considerable effect, by more immediately diminishing the irritability of the parts themselves.



RED SAUNDERS TREE.

PTEROCARPUS SANTALINUS.

Class XVII. Diadelphia. *Order* III. Decandria.

ESSENT. GEN. CHAR. *Calyx* five-toothed: *Capsule* falcated, foliaceous, varicose: *Seed* solitary.

SPEC. CHAR. *Leaves* ternate, roundish, retuse, very smooth: *Petals* of the *corolla* crenate, undulate.

DESCRIPTION.

A LARGE tree. Leaves in threes, ovate, blunt, somewhat notched at the end, somewhat veined. Flowers yellow, in spikes, papilionaceous.

HISTORY.

Native of the East Indies, growing on mountainous situations.

MEDICAL VIRTUE.

The juice of this tree affords what is styled *sanguis draconis*, dragon's blood, and has been thought good in spitting of blood probably from its colour. The only use to which it seems to be generally applied, is to give a fine colour to medicines, whose aspect might otherwise nauseate a weak stomach.

COMMON BROOM.

SPARTIUM SCOPARIUM.

Class XVII. Diadelphia. *Order* III. Decandria.

ESSENT. GEN. CHAR. *Stigma* longitudinal, above villous: *Filaments* adhering to the germen: *Calyx* produced downwards.

SPEC. CHAR. *Leaves* ternate, and single: *Branches* unarmed, angular.

DESCRIPTION.

THIS tree grows to six or seven feet in height. The leaves are small and downy, the inferior leaves in threes, those above single. The flowers very large, and numerous, of a bright yellow. The stamens with the pistillum have a remarkable curve.

HISTORY.

Native of Britain, and flowers in April and May.

MEDICAL USE.

The tops of the broom have a bitter, and rather disagreeable taste. Infusions, decoctions, and extracts made with them, have

been recommended as powerful diuretics in dropsies, when joined with nitre, sal-diureticus, or other neutral salts; and if taken in sufficient quantity they prove likewise purgative. The infusions have been given in doses of one, two, or more ounces, frequently repeated,—the extract from half a drachm to a drachm and a half.

Dr. Cullen says, "The broom, though very little in use, I have inserted in my catalogue (of cathartics) from my own experience of it. I found it first in use among our common people; but I have since prescribed it to some of my patients in the manner following:—I order half an ounce of fresh broom tops to be boiled in a pound of water till one half of this is consumed, and of this decoction I give two table-spoonfuls every hour till it operates by stool, or till the whole is taken. It seldom fails to operate both by stool and urine, and by repeating this exhibition every day, or every second day, some dropsies have been cured."

The seeds have been used for the same purposes as the tops. The ashes of the broom have long had the reputation of being very powerful diuretics, and they are an ingredient in most of the diuretic wines and infusions prepared fifty or sixty years ago; but whether the alkaline salts of these ashes are rendered more powerfully diuretic by the mixture of an oil, or any other foreign substance got from the broom in burning, than the alkaline salts got from other vegetables, I think is much to be doubted.

The seeds when roasted have been used as coffee. The bark, for tanning.

FENUGREEK.

TRIGONELLA FŒNUM GRÆCUM.

Class XVII. Diadelphia. *Order* III. Decandria.

Essent. Gen. Char. *Banner* and *Wings* subequal, patent; the form of the corolla as if three-petalled.

Spec. Char. *Legumes* sessile, stiff, nearly erect, somewhat falcate, pointed: *Stem* erect.

DESCRIPTION.

This plant rises two feet in height. The leaves are oblong, serrated, veined, and stand in threes upon a common footstalk. Flowers white, papilionaceous, appearing in pairs from the alæ of the leaves. The pericarp is at first a straight legume, but afterwards becomes falcated.

HISTORY.

Native of Montpellier, and flowers from June till August.

MEDICAL VIRTUE.

The seeds are imported to us from the south of France, and principally used in cataplasms and fomentations, for softening, maturating, and discussing tumors, and in emollient glysters.

GOAT'S THORN, OR MILK VETCH.

ASTRAGALUS TRAGACANTHA.

Class XVII. Diadelphia. *Order* III. Decandria.
ESSENT. GEN. CHAR. *Legumen* bilocular, gibbous.
SPEC. CHAR. *Caudex* arborescent: *Petioles* a spine.

DESCRIPTION.

THE plant is small, shrubby, clothed with brown fibres, and beset with strong spines. Leaves pinnated, pinnæ numerous, attached to a strong spinous footstalk. Flowers large, of a pale yellow, in close clusters.

HISTORY.

Gum tragacanth is the produce of a very thorny shrub, which grows on the island of Candia, and other places in the Levant.

About the end of June a fluid exudes from the stem and larger branches, which dries in the sun, and is collected by the shepherds on Mount Ida, from whence it is sent to Europe under the title of Tragacanth.

It consists of whitish semitransparent vermiform pieces, scarcely a line in thickness, without taste or smell.

There is also a dirty yellow, or brownish kind, which is not fit for medical purposes.

Tragacanth is difficultly pulverizable, unless when thoroughly dried, and the mortar heated, or in frost. According to Neuman, it gives nothing over in distillation, either to water or alcohol: alcohol dissolves only about 10 parts of 480, and water the whole. Lewis, however, more accurately observes, that it cannot be properly said to be dissolved; for, put into water, it absorbs a large proportion of that fluid, increasing immensely in volume, and forming with it a soft, but not fluid, mucilage; and although it is easily diffused through a larger proportion of water, after standing a day or two, the mucilage subsides again, the supernatant fluid retaining little of the gum.

Besides these remarkable differences from gum arabic in regard to brittleness, insolubility, and the quantity of water which it thickens, I find, says Dr. Duncan, jun., that tragacanth is not precipitated by silicized potash, and is precipitated by sulphate of copper, and acetate of lead.

MEDICAL USE.

In pharmacy it is employed for forming powders into troches, and rendering tough cohesive substances pulverizable, by beating them with mucilage of tragacanth, and then drying the mass. For electuaries it is improper, as it renders them slimy on keeping.

OFFICINAL PREPARATIONS.

MUCILAGE OF GUM TRAGACANTH. (Mucilago Astragali Tragacanthæ. E.)

Take of gum tragacanth, in powder, one ounce;
——— boiling water, eight ounces:
Macerate for twenty-four hours; then triturate carefully, that the gum may be dissolved; and press the mucilage through linen cloth.

MUCILAGE OF TRAGACANTH. (Mucilago Tragacanthæ. L.)

Take of tragacanth, half an ounce;
Distilled water, ten ounces, by measure:
Macerate them, with a gentle heat, till the tragacanth be dissolved.

Gum tragacanth is difficultly soluble in water. When macerated in it, it swells, but does not dissolve. To effect the solution, it must be beaten into a paste with some of the water; and the rest of the water must be added gradually, and incorporated with the paste, by beating them together.

COMPOUND POWDER OF TRAGACANTH. (Pulvis Tragacanthæ Compositus. L.)

Take of tragacanth, powdered,
——— gum arabic,
——— starch, of each an ounce and a half;
——— double refined sugar, three ounces:
Rub them together into a powder.

This composition is a mild emollient; and hence becomes serviceable in hectic cases, tickling coughs, strangury, some kinds of alvine fluxes, and other disorders proceeding from a thin acrimonious state of the excreted fluids, or an abrasion of the mucus of the intestines; it is supposed to soften, and give a greater degree of consistency to the former, and defend the latter from being irritated or excoriated by them. All the ingredients coincide in these general intentions. The dose is from half a drachm to two or three drachms, which may be frequently repeated.

ORANGE.

CITRUS AURANTIUM.

Class XVIII. Polyadelphia. *Order* III. Icosandria.

ESSENT. GEN. CHAR. *Calyx* five-cleft: *Petals* five, oblong: *Anthers* 20: *Filaments* united into different bodies.

SPEC. CHAR. *Petioles* winged: *Leaves* acuminate.

DESCRIPTION.

THIS beautiful plant, which gives a refreshing shade in warm climates, and perfumes the air for miles, at the same time regaling the delicate taste with a sweet luxuriant juice, equally grateful as wholesome, and which is imported in immense abundance to us from abroad, is found adorning our green-houses, and in the height of summer our gardens, in large tubs, or pots, and they often have the appearance of handsome trees. The leaves are nearly elliptical, smooth, entire, of a shining green colour, and the footstalk is winged, that is, it has the appearance of a small leaf. The flowers appear during the whole of summer, and some branches are in full bloom whilst others are just going off, and on others appear the young or fully grown oranges. The calyx is salver-shaped, and cut into five small teeth. The petals are five, oblong, white, fleshy, and beset with small

glands. Filaments twenty, united at the base into three or more distinct portions, furnished with yellow anthers. Stigma globular.

HISTORY.

The orange tree is a beautiful evergreen, a native of Asia, but now abundantly cultivated in the southern parts of Europe and in the West India islands. There are several varieties of this species, but they may be all referred to the bitter or Seville orange, and the sweet or China orange.

The leaves are neither so aromatic nor so bitter as the rind of the fruit.

The flowers are highly odoriferous, and have been long in great esteem as a perfume; their taste is somewhat warm, accompanied with a degree of bitterness. They yield their flavour by infusion to rectified spirits, and in distillation both to spirit and water: the bitter matter is dissolved by water, and on evaporating, the decoction remains entire in the extract.

A very fragrant red-coloured oil, distilled from these flowers, is brought from Italy, under the name of *oleum* or *essentia neroli*; but oil of behen, in which orange flowers have been digested, is frequently substituted for it: the fraud, however, is easily detected, as the real oil is entirely volatile, and the adulterated is not.

The juice of oranges is a grateful acid liquor, consisting principally of citric acid, syrup, extractive, and mucilage.

The outer yellow rind of the fruit is a grateful aromatic bitter.

The unripe fruit, dried, are called Curaçoa oranges. They vary in size, from that of a pea to that of a cherry. They are bitterer than the rind of ripe oranges, but not so aromatic, and are used as a stomachic.

MEDICAL USE.

The juice of the fruit is of considerable use in febrile or inflammatory distempers, for allaying heat, quenching thirst, and promoting the salutary excretions: it is likewise of use in genuine scorbutus, or sea scurvy. Although the Seville, or bitter orange, as it is called, has alone a place in our pharmacopœias, yet the China, or sweet orange, is much more employed. Its juice is milder, and less acid; and is very frequently used in its most simple state with great advantage.

CULINARY PREPARATIONS.

Method of obtaining the fragrant Essences from the fresh Rinds of Citrons, Oranges, &c.

Procure as many fresh citrons from the Italian warehouses as will supply the required stock of essence; after cleaning off any speck in the outer rinds of the fruit, break off a large piece of loaf sugar, and rub the citron on it till the yellow rind is completely absorbed. Those parts of the sugar which are impregnated with the essence, are from time to time to be cut away with a knife, and put in an earthen dish. The whole being thus taken off, the sugared essence is to be closely pressed, and put by in pots; where it is to be squeezed down hard, have a bladder over the paper by which it is covered, and tied tightly up. It is at any time fit for use, and will keep for many years. Exactly in the same manner may be obtained and preserved, at the proper seasons, from the fresh roots, the essences of the rinds of Seville or China oranges, lemons or limes, bergamots, &c., some of which are often unattainable, in a fresh state, at any price. This mode of extracting and preserving these essences is superior to the common practices of peeling, rasping, or grating off the rind, and afterward mixing it up with powdered sugar, &c.

Orange Wine.

Put twelve pounds of powdered sugar, with the whites of eight or ten eggs well beaten, into six gallons of spring water, boil them three quarters of an hour; when cold, put into it six spoonfuls of yeast, and the juice of twelve lemons, which, being pared, must stand with two pounds of white sugar in a tankard, and in the morning skim off the top, and then put it into the water; add the juice and rinds of fifty oranges, but not the white or pithy parts of the rinds; let it work all together two days and two nights; then add two quarts of Rhenish or white wine, and put it into your vessel.

Orange or Lemon Pie.

Rub six oranges or lemons with salt, and put them into water, with a handful of salt in it, for two days. Put every day fresh water without salt, for a fortnight. Boil them tender, cut them into half quarters corner-ways, quite thin. Boil six pippins pared, cored, and quartered, in a pint of water till they break; then put the liquor to the oranges or lemons, with half

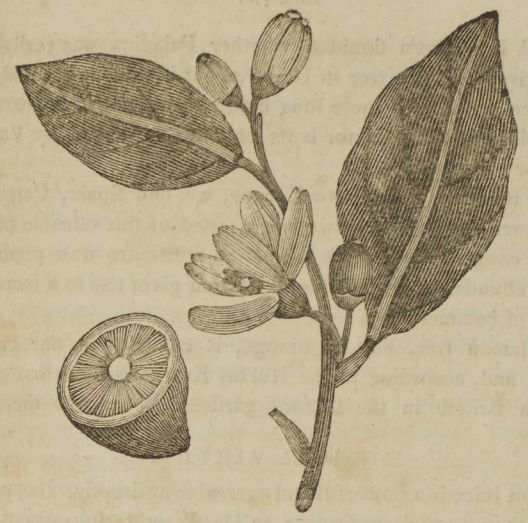
the pulp of the pippins well broken, and a pound of sugar. Boil them a quarter of an hour, then put them into a pot and squeeze in two spoonfuls of the juice of either orange or lemon, according to the kind of tart. Put puff paste, very thin, into shallow patty-pans. Take a feather, or brush, and rub them over with melted butter, sift double refined sugar over them, which will form a pretty iceing, and put them in the oven.

Orange Tarts.

Grate a little of the outside of a Seville orange, squeeze the juice into a dish, put the peel into water, and change it often for four days. Then put them into a saucepan of boiling water on the fire. Change the water twice to take out the bitterness, and when tender, wipe, and beat them fine in a mortar. Boil their weight in double refined sugar into a syrup, and skim it. Then put in the pulp, and boil all together till clear. When cold, put it into the tarts, squeeze in the juice, and bake them in a quick oven. Conserve of oranges makes good tarts.

Orange Puffs.

Pare off the rinds from Seville oranges, then rub them with salt: let them lie twenty-four hours in water; boil them in four changes of water, make the first salt; drain, and beat them to a pulp: bruise in the pieces of all that you have pared, make it very sweet with loaf sugar, and boil it till thick; let it stand till cold, and then put it into the paste.



LEMON.

CITRUS MEDICA.

Class XVIII. Polyadelphia. *Order* III. Icosandria.

Essent. Gen. Char. Same as the preceding.

Spec. Char. *Petioles* linear.

DESCRIPTION.

This evergreen resembles the orange, to which it is closely allied, but the leaves are commonly larger, slightly indented at the edges, and the footstalk without having the remarkable appendage of the other. The flowers are very like the other, but have a purplish tinge on the outer side of the petals. The fruit is less round, and has a prominent apex. The fruit is divided into nine cells.

HISTORY.

This tree is a native of the upper parts of Asia, from whence it was brought to Greece, and afterwards by Paladius to Italy *.

* Etenim citrus apud Medos et Persas imprimis frequens, dein Paladii diligentia in Italiam translata fuit: postea in Hispania in usum devenit, ut nemora et campos occuparit.—Bauh. Pin. p. 435.

Although it has been doubted whether Paladius was really the first cultivator of this tree in Italy, yet it is evident it could not have been propagated there long before his time, as appears by the writings of Pliny*; nor is its cultivation noticed by Varro, Cato, or Columella.

After its introduction into Europe, we find Spain, Portugal, and France, became successively possessed of this valuable plant, with its congeners; and the Hesperian fruits are now produced in such abundance, that their exportation gives rise to a lucrative branch of commerce.

The lemon tree, like the orange, is common in our greenhouses; and, according to the Hortus Kewensis, was first cultivated in Britain in the Oxford garden, previous to the year 1648 †.

MEDICAL VIRTUE.

Lemon juice is a powerful and agreeable antiseptic. Its powers are much increased, according to Dr. Wright, by saturating it with muriate of soda. This mixture he recommends as possessing very great efficacy in dysentery, remittent fever, the belly-ach, putrid sore throat, and as being perfectly specific in diabetes and lientery. Citric acid is often used with great success for allaying vomiting: with this intention it is mixed with carbonate of potass, from which it expels the carbonic acid with effervescence. This mixture should be drunk as soon as it is made; or the carbonic acid gas, on which actually the anti-emetic power of this mixture depends, may be extricated in the stomach itself, by first swallowing the carbonate of potass dissolved in water, and drinking immediately afterwards the citric acid properly sweetened. The doses are about a scruple of the carbonate dissolved in eight or ten drachms of water, and an ounce of lemon juice, or an equivalent quantity of citric acid.

Lemon juice is also an ingredient in many pleasant refrigerant drinks, which are of very great use in allaying febrile heat and thirst. Of these, the most generally useful is lemonade, or diluted lemon juice, sweetened.

We are now to speak to the cure of scurvy.—From what we ourselves have seen of the disease, or learned from the writings of authors, we believe that fresh esculent vegetables of all kinds will cure it; but that those fruits abounding with an acid,

* See Hist. Nat. l. 12. c. 3. † See Hort. Oxon. ed. i.

such as the citric class, are more effectual than others. Most vegetables possess in their recent state a portion of acid, though so small as not always to be perceived, and in proportion as it abounds in them, and perceptible to our taste, they have a superior antiscorbutic quality. The lemon, lime, shaddock, and orange, in the order we have set them down, give out the citric acid in different degrees of purity. This genus of fruit has advantages above all others; for as it approaches to maturity the acid is not altered for the worse, but rather purer than before. The unripe gooseberry has the citric and oxalic acids combined in its juice, and there can be no doubt but it is equally as effectual as the lemon. I recommended this, says Dr. Trotter, to be carried to sea; and have since seen in a newspaper, where a number of scorbutic sailors in an East Indiaman were cured in their passage outwards by some unripe gooseberries that were preserved for making tarts. The malic acid is pure in the apple just before it is ripe, but it has less afterwards. The last case of scurvy which I treated was cured by apples. This, with the recovery of the seamen in the Berwick, at Torbay, sufficiently proves that apples are valuable antiscorbutics.

The cases in which I last administered the juice of lemons and oranges for the cure of scurvy are worth narrating. Some time in November, 1789, eighty Irish convicts came from Newfoundland in company with the ships returning from that station to England. These convicts, to the number of 130 or 140, had been shipped at Dublin some time before. The master of the vessel in which they sailed, had orders to land or dispose of them somewhere in the territories of the United States of America. Instead, however, of fulfilling his contract with government, and obeying orders, he resolved upon making the best bargain with his prisoners. Those who had cash paid it to him for their liberty; among the rest was a noted Roman catholic priest, who had been convicted of forgery. When he had stript them of all the money and clothes which they had, they were, men and women, turned on shore in the island of Newfoundland. Here, with the little provision he had given them, they were to make the best of it. Some perished in the woods from hunger and fatigue, and others reached different settlements in the island. The circumstances of their situation soon reached vice-admiral Milbank, then commander in chief on that station, who ordered them to be collected and secured, and a ship fitted to carry them

to England. They remained in Portsmouth harbour till the Deptford, a navy transport, was ordered to convey them to Dublin, under convoy of his majesty's sloop Drake. The sloop and transport went to sea, and were obliged to put back to Cowes Road in distress of weather about the 20th of December. The master of the transport, at this time, complained to captain Countess of the Drake, that the convicts were in a very unhealthy state, and begged he would order his surgeon's mate to visit them, the surgeon of the Drake being then absent. The young gentleman had been a stranger to the diseases of seamen, and immediately pronounced that the gaol fever had broke out among them. This opinion he conceived from the debilitated state, the fetor about them, but particularly the large livid spots which appeared in different parts of their bodies, and the desire which many of them expressed for acid fruits and vegetables. Captain Onslow, then commanding at Portsmouth in the room of vice-admiral Roddam, transmitted captain Countess's report to the lords commissioners of the admiralty, who, by return of post, ordered two surgeons to survey the convicts, and report their situation. The surgeon of the Magnificent, with myself, was ordered on this business. The first man who made his appearance plainly showed that the disease was scurvy; and when we came to inquire more particularly into their history, as related above, there could be little doubt that the complaint was general. From the time that they embarked at St. John's, in the island of Newfoundland, till now, they had lived on ship's provisions, without any fresh vegetables whatever, at the rate of two-thirds allowance. Never did I behold together so many wretched fellow-creatures. Those that were clothed had not shifted for many months; but the greater part of them were naked, even without a shirt; a hammock tied round their shoulders by a rope-yarn was their only shelter from the cold, and at the same time without a bed to lie upon. It ought to be remembered it was now the middle of winter, and the weather for some time before had been wet and boisterous.

In our report to the commanding officer of the port, we recommended an immediate supply of recent vegetables, clothing, and bedding; all of which, much to the credit and humanity of the admiralty board, were granted, with a surgeon, and what assistance he chose to call in to attend them.

Few of them were without some symptom of scurvy; such as

spongy gums, livid spots on different parts, and contractions of the hams, &c. This last symptom has generally been accounted for from blood effused in the interstices of the muscles, or into the cellular texture. Such an explanation is, indeed, very mechanical, but it is not a good one. Had this rigidity and contraction been owing to pieces of coagulated blood, there must have been some perceptible swelling or distention of the parts; but none is to be observed: the thigh is shrivelled and less in circumference than in a healthy state; the tendinous fibres are also to be traced by their hardness, till they are gradually lost in the belly of the muscles. Besides, if that explanation could be admitted, we might with equal propriety say, that the Trismus and Tetanus, which were met with among the black people, were produced by the same means, viz. lumps of clotted blood, distending the temporal, masseter, and other muscles, which move the lower jaw upwards. And in tetanus how can it be supposed that the whole muscles of the body could be thrown into a rigid contraction from any cause of this kind? These conditions of the muscular fibre are certainly much better explained from the diminished nervous energy: it is this torpor of the *vis vitæ*, which produces the *hebetudo animi*, and renders the mind as well as the body so little disposed to be affected by the usual stimuli; and is a state of the nervous influence more peculiar to scurvy than any other disease*.

Bedding and clothing being immediately furnished to the convicts by their lordships' orders, the cure of scurvy was begun with lemons and oranges. At the same time they had beef and mutton broth, in which were boiled cabbages, onions, &c. In distributing the fresh fruit among them, the only rule that I went by, was to give most to those who had the worst symptoms of the disease. Their recovery, as is commonly remarked in the scurvy, when plentifully served with acid fruits, was astonishingly rapid; for on the eighteenth day of my attendance they sailed for Dublin, where they arrived in ten days after, in perfect health and spirits.

The great desideratum in long sea voyages is some preparation of the citric acid, that preserves all its virtues for a length of time. Different forms have been tried for this purpose. The

* Dr. Blane says, he dissected some subjects, and found no ecchymosis.

extract recommended so warmly by Dr. Lind, has been found by captain Cook and others of little or no effect. It could scarcely, indeed, be expected that any preparation of this kind could retain the virtues of the recent fruit. It is not only the water that evaporates, but the acid is carried off with it, and the taste of the remaining juice has manifestly less acidity than when it was squeezed from the lemon; its powers were not, therefore, concentrated by that process. A much better method is to bottle up the juice immediately as it is squeezed and strained. By letting it stand to clear, it is said that the mucilage may be separated, which is the cause of its acquiring a mouldiness and disagreeable taste: but what we gain in one way by these means we lose in another; for during the depuration and precipitation of the mucilage, a fermentation begins, which very materially alters the acidity of the juice, and destroys its antiscorbutic qualities. If, therefore, the lemons are fresh, as they ought to be, with their rind hard and full of aroma, the liquor may be corked up instantly, to preserve it in perfection.

The best method of giving the lemon or orange juice, is to allow the patient to suck it from the fruit. With little trouble the entire lemon may be preserved for the longest cruize in tight casks; and this is, of all others, the surest way of securing the virtues of the citric acid.

But other methods of concentrating and preserving the citric acid have been lately practised by different chemists. The following process for concentrating the acid juice of citrons, and rendering it unalterable, was published some time ago by Mr. Georgius, in the Acts of the Academy of Stockholm. He directs the juice to be kept for some time in the cellar (I suppose where it may be cool, and not liable to fermentation) in inverted bottles, in order to separate from it a part of the mucilage, and then to expose it to a cold from 21° to 23° of Fahrenheit's thermometer. The aqueous part freezes, carrying with it, as it would appear, a portion of the mucilaginous matter: care must be taken, as the ice forms, to separate the liquid from it, and the congelation must be carried on till the ice becomes acid. The acid thus concentrated is reduced to about one-eighth part of its original bulk.

This preparation has not yet been tried in practice for the cure of scurvy, but there can be no doubt of its good effects. It is much to be wished that government should patronize a trial

of the acid concentrated in this manner; for, when prepared as it ought to be, it will keep for ages.

The juice of lemons and limes has been often recommended by some of the oldest writers to be used externally to the swellings, rigid limbs, and ulcers of scorbutic patients. A surgeon in lord Rodney's fleet last war, we are informed by Dr. Blane, found much benefit from it, applied to sores in the form of a poultice.

Lemon juice also counteracts the powers of opium.

Letter from General Sir George Brathwaite Boughton, Bart., to Dr. Beddoes.*

Poston Hall, July 24, 1795.

Sir, Having for a considerable time been troubled with rheumatic pains, it was recommended to me to take a mild opiate every night on going to bed, and in the event of that dose not proving sufficiently soporific, I was to add to it a few drops of laudanum, for which purpose I had procured a three-ounce phial of laudanum. Nevertheless, being unwilling to accustom myself to the use of opium, I generally postponed taking the opiate till extreme pain and want of sleep rendered it absolutely necessary. In one of these moments, about four o'clock in the morning, I reached out my hand to the table, on which, by mistake, my servant had placed the phial containing the laudanum; and believing this to be my usual night draught, I poured out the contents into a tumbler glass, and drank it off. I soon perceived my mistake by the taste of the laudanum; but from my immediate relief from pain, accompanied by a certain pleasing languor, it was some time before I could rouse myself so as to call assistance. Being, however, perfectly convinced that I must soon beat a quick march to the other world, unless my stomach was eased of the poison it contained, I rang the bell, and ordered some warm water. It was some time before this could be got ready. As soon as it was brought, I drank large quantities, but without any effect. The apothecary was then sent for, who gave me three several doses of vitriolated zinc †, when at last they succeeded so well, that I brought up a considerable quan-

* This is published in "Observations on the Medicinal Use of Factitious Airs, and their Production;" by Dr. Beddoes.

† This metal, like the rest, has no power until it be combined with oxygen.

tity of the laudanum. In the morning early I sent for Dr. Thornton, who administered the vital air*, and ordered me lemonade†, which, from the weak state of my stomach, was almost as speedily returned, but perfectly sweet to the taste, and so deprived of all acidity ‡, as to be like sugar and water, and did not effervesce with alkali. This was frequently repeated; when in the evening I ate my dinner, without any sensible difference, and felt the next day much as usual. This is the simple fact, to the best of my remembrance; if it can be of any use in a science which has for its object the ease and happiness of mankind, I shall always look back with pleasure to an accident which has afforded me an opportunity of giving you this detail. —I have the honour to be, Sir,

Your most obedient servant,

G. C. Brathwaite Boughton.

P. S. Among the Indians, who take great quantities of solid opium, when they wish to remove the effects of stupefaction they drink plenty of lime juice, which they know, from experience, produces that effect.

Lemonade has been known to cure also putrid fever, and is always a refreshing drink in that disorder.

OFFICINAL PREPARATION.

Syrup of Lemon Juice. (Syrupus e Succo Limonis.)

Take of lemon juice, strained, after the dregs have subsided, two pints;

——— of double refined sugar, fifty ounces:

Dissolve the sugar, to make a syrup.

In the same manner are made the syrups of mulberries, of raspberries, and of black currants.

CULINARY PREPARATIONS.

Candied Lemon Peel

Is made by boiling lemon peel with sugar.

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* Dr. Thornton, in his observations on this case, remarks that the vital air was very rapidly consumed; which must recall to the reader's mind the celebrated experiment of Spalding, recorded in Phil. of Med. vol. i. p. 89.

† A mixture of lemon, sugar, and water.

‡ The acid principle has been before proved to be derived from the oxygen or vital air.

Lemon Pudding.

Cut off the rind of three lemons, and boil them tender. Pound them in a mortar, and have ready a quarter of a pound of Naples biscuits boiled up in a quart of milk or cream. Mix them and the lemon rind with it, and beat up twelve yolks and six whites of eggs. Melt a quarter of a pound of fresh butter, and put in half a pound of sugar, and a little orange-flower water. Mix all well together, put it over the fire, stir till thick, and then squeeze in the juice of half a lemon. Put puff paste round your dish, then pour in your pudding, cut candied sweetmeats and strew over, and bake it three quarters of an hour.

Or make it thus:—Blanch and beat eight ounces of Jordan almonds with orange-flower water; add to them half a pound of cold butter, the yolks of eight or ten eggs, the juice of a large lemon, and half the rind grated. Work them in a marble mortar till they look white, then put puff paste on your dish, pour in your pudding, and bake half an hour.

How to keep Lemons.

Take fruit that are quite sound and good, and run a fine packthread, about a quarter of a yard long, through the hard nib at the end of the lemon; then tie the string together, and hang it on a hook in an airy dry place: be sure they do not touch one another, nor any thing else, but hang them as high as you can.

PERFORATED ST. JOHN'S WORT.

HYPERICUM PERFORATUM.

Class XVIII. Polyadelphia. *Order* IV. Polyandria.

ESSENT. GEN. CHAR. *Calyx* five-parted, inferior: *Petals* five: *Filaments* numerous, in three or five parcels, united at the base: *Capsule* many-seeded.

SPEC. CHAR. *Styles* three: *Stem* two-edged: *Leaves* obtuse, with pellucid dots; divisions of the *Calyx* linear-lanceolate, acute.

DESCRIPTION.

RISES to a foot and half in height. Branches opposite, flower-bearing. Leaves sessile, in pairs, entire, beset with a great number of minute transparent vesicles, which have the appearance of perforations. Flowers numerous, elegant, five-petalled, of a beautiful yellow. Stamina in three parcels. Anthers yellow, with a small black gland to each.

HISTORY.

Native of Britain; common in woods and uncultivated grounds, and flowers in July.

MEDICAL VIRTUE.

Formerly it was supposed, and not without reason, that madmen were possessed of the devil, and this plant was found so successful in that disorder, that it had the title of *Fuga dæmonum*, as curing dæmoniacs. Matthiolus writes, "Scripsere quidem Hypericum adeo odisse dæmones, ut ejus suffitu statim avolent." It has not been tried in modern practice, except in hysteria and suppressed menses in a decoction. The colouring matter gives a good dye to wool. And oil reddened with this plant is kept in some shops against burns.

CAJEPUT TREE,

OR

AROMATIC MELALEUCA.

MELALEUCA LEUCADENDRON.

Class XVIII. Polyadelphia. *Order* IV. Polyandria.

ESSENT. GEN. CHAR. *Calyx* five-parted, half superior: *Petals* five: *Filaments* numerous, united into five bodies: *Style* one: *Capsule* half inverted by the calyx, thee-celled.

SPEC. CHAR. *Leaves* alternate, pointed, oblique in a falcate manner, five-nerved: *Branchlets* and *Petioles* glabrous.

DESCRIPTION.

A MODERATE-SIZED tree. Leaves linear-lanceolate, ash-coloured, odorous, on short footstalks. Flowers white, sessile, on long terminal spikes. Capsule round.

HISTORY.

The tree which furnishes the cajeput oil is frequent on the mountains of Amboyna, and the other Molucca islands. It is

obtained by distillation from the dried leaves of the smaller of two varieties, and is prepared in great quantities, especially in the island of Banda, and sent to Holland in copper flasks. As it comes to us it is of a green colour, very limpid, lighter than water, of a strong smell, resembling camphor, and a strong, pungent taste, like that of cardamoms. It burns entirely away, without leaving any residuum. It is often adulterated with other essential oils, coloured with the resin of milfoil. In the genuine oil, the green colour depends on the presence of copper; for when rectified it is colourless.

MEDICAL USE.

Like other aromatic oils it is highly stimulating, and is principally recommended in hysteria, epilepsy, flatulent colic, and paralysis of the tongue. The dose is from one to four drops on a lump of sugar.

It is applied externally where a warm and peculiar stimulus is requisite; and is employed for restoring vigour after luxations and sprains; and for easing violent pain in gouty and rheumatic cases, in toothach, and similar affections.

ARTICHOKE.

CYNARA SCOLYMUS.

Class XIX. Syngenesia. *Order* I. Polygamia æqualis.

Essent. Gen. Char. *Receptacle* bristly: *Calyx* dilated, imbricate, the scales fleshy at the base, emarginate with a small point: *Down* sessile, feathery.

Spec. Char. *Leaves* prickly or unarmed, pinnate and undivided: *Scales* of the calyx ovate.

DESCRIPTION.

This plant rises three or four feet. Leaves large, on the upper part smooth, beneath reticulate, hoary, and downy. Flowers terminal. Calyx common, globular, composed of numerous scales, at the base thick and fleshy, the part we eat, and above membranous, notched, with a spinous point in the centre. Florets of the corolla blue, each cut in five thin segments, tubular at bottom. Seeds oblong, furnished with a feathery pappus, on a fleshy receptacle, a part we eat, called the bottom; the young flower we call the choke.

HISTORY.

Native of the south of Europe, flowering in August.

MEDICAL USE.

The leaves and stalks of the artichoke contain a bitter juice, which is very diuretic, and has long been esteemed a good remedy for evacuating the water of dropsies by urine. This juice is got by mashing the leaves and stalks, and then squeezing them in a press; and afterwards by straining it through a cloth: it is commonly ordered to be mixed with white wine, and is given from half an ounce to an ounce for a dose; which is repeated twice or thrice in the day, as the stomach will bear it.

The leaves and stalks enter as an ingredient into many of the diuretic decoctions, which are prepared by the country people in many of the counties. The following decoction, the preparation of which was long kept as a secret by a person at Andover, is said to have carried off the water from several people labouring under the dropsy:—Take of artichoke leaves and stalks, three handfuls; of bruised juniper berries, one quart; of scraped horse-radish, one handful; of green fir tops, two handfuls; of bruised white mustard seed, two table spoonfuls: mix the whole, and boil them in two gallons of water to one, and strain the liquor through a cloth. A grown person is to take half a pint morning and evening, adding a little syrup or sugar if agreeable.

Geoffroy, in his Materia Medica, mentions the root of the artichoke as a powerful diuretic; and recommends decoctions or broths made with it as good for promoting a discharge by urine.

DANDELION.

LEONTODON TARAXACUM.

Class XIX. Syngenesia. *Order* I. Polygamia æqualis.

Essent. Gen. Char. *Receptacle* naked: *Calyx* double: *Down* simple, pedicelled.

Spec. Char. *Outer Calyx* reflexed: *Scape* one-flowered: *Leaves* runcinate, smooth, with lanceolate toothed lobes.

DESCRIPTION.

This is a small plant, and common in every field; the flowers stand upon a scape, and are all ligulate, that is strap-shaped, and have five stamina with united anthers, round a pistillum, possessing a bifid stigma. The seed, when mature, has a fine circular feathery crown, by which it flies to distant parts.

HISTORY.

Native of England, and every where to be found, flowering during April, June, and July.

MEDICAL USE.

The young leaves of this plant in a blanched state have the taste of endive, and make an excellent addition to those plants eaten early in the spring as sallads*. At Gottingen the roots are roasted, and substituted for coffee, by the poorer inhabitants; who find that an infusion prepared in this way can hardly be distinguished from that of the coffee berry †. The origin of its name is curious. Leontodon, Greek, Lion's Tooth, from the toothed-like appearance of the leaf; Leonis Dens, Latin, from the Greek; Dent de Lion, French, from the Latin; and hence our word from the French, Dan-de-lion; also called Piss-a-bed, from its diuretic quality, which children experience who eat the young plant ‡.

The leaves and roots of this plant are bitter, and contain a bitter milky juice. They have been esteemed to be diuretic, saponaceous, and resolvent, and to be powerful remedies for removing obstructions of the liver, and of the other viscera. Their purified expressed juice has been given from two to six ounces, twice, thrice, or oftener in the day; and infusions and decoctions of the herb and root have been used for the same purposes. Boerhaave had such a great opinion of the continued use of the juice, or of the infusions of this plant, that he believed they were capable of removing most obstructions of the viscera that were to be relieved by medicine. Bergius likewise speaks much in the praise of this simple; and says, "That he has often seen it prove of service after other remedies had failed; and that he has seen hardnesses of the liver removed, by patients eating daily, for some months, of a broth made with dandelion root, the leaves of sorrel, and the yolk of an egg with water; while they took, at the same time, cream of tartar, to keep their bodies open;" and he adds, "that he has seen a similar course of service, in the ascites, and in cases of gall stones."

* Withering's Bot. Arrang. p. 839.

† Murray's Apparat. p. 107.

‡ When a swarm of locusts had destroyed the harvest in the island o Minorca, many of the inhabitants subsisted upon this plant.—Withering.

BURDOCK.

ARCTIUM LAPPA.

Class XIX. Syngenesia. *Order* I. Polygamia æqualis.

ESSENT. GEN. CHAR. *Receptacle* chaffy: *Calyx* globular, the scales ending in an incurved hook: *Seed* crowned with chaffy bristles.

SPEC. CHAR. *Stem-leaves* heart-shaped, petioled, denticulate: *Calyx* smooth.

DESCRIPTION.

THIS plant rises three feet. Stem purplish: branches alternate. Leaves also alternate, heart-shaped, veiny; above of a dark green, beneath whitish. Lower leaves very large, standing upon long footstalks, grooved like the stem. Flowers numerous, generally ending in pairs.

HISTORY.

This plant is common in waste grounds and road sides; it flowers in July and August, and is well known by the burs, or

scaly heads, which stick to the clothes, a circumstance from which the word Lappa is supposed to be derived*.

MEDICAL VIRTUE.

The pharmacopœias direct the root for medical use: it has no smell, but tastes sweetish, and mixed as it were with a slight bitterishness and roughness. Its virtue, according to Bergius, is mundificans, diuretica, diaphoretica†; and many instances are upon record in which it has been successfully employed in a great variety of chronic diseases, as scurvy, rheumatism, gout, lues venerea‡, and pulmonic complaints. We have never had an opportunity of observing the effects of this root, except as a diuretic, and in this way we have known it succeed in two dropsical cases, where other powerful medicines had been ineffectually used: and as it neither excites nausea nor increases irritation, it may occasionally deserve a trial where more active remedies are improper. The seeds also possess a diuretic quality, and have been given with advantage in the dose of a drachm in calculous and nephritic complaints, and in the form of emulsion as a pectoral. The root is generally used in decoction, which may be made by boiling two ounces of the fresh root in three pints of water to two, which, when intended as a diuretic, should be taken in the course of two days, or if possible in twenty-four hours.—Woodville.

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* Lappa dici potest vel απο τε λαβειν prehendere, vel λαπτειν lambere. Ray, l. c.

† Mat. Med. 653.

‡ Henricus III. Galliarum Rex, a Petro Penâ decocto radicum Lappæ ab hac lue sanatus fuit. Vide Reverius, Obs. 41.

The young stems of this plant, stripped of their rind, are boiled and eaten like asparagus. When raw, they are good with oil and vinegar.—Withering, 864. l. c.

WILD SUCCORY.

CICHORIUM INTYBUS.

Class XIX. Syngenesia. *Order* I. Polygamia æqualis.

Essent. Gen. Char. *Receptacle* somewhat chaffy: *Calyx* invested with scales: *Seeds* crowned with numerous short teeth.

Spec. Char. *Flowers* in pairs, axillary, nearly sessile: *Leaves* runcinate.

DESCRIPTION.

This beautiful plant rises three or four feet high. Leaves numerous, pinnatifid, cut into irregular teeth like the dandelion, alternate, somewhat hairy, sessile. Flowers compound, large, blue. Corolla ligulate, cut into five teeth at the extremities.

HISTORY.

Native of Britain; common about the borders of corn-fields; and flowers in July and August. The leaves, when blanched, are eaten early in the spring in sallads. They lose their bitterness by cultivation. The roots, gathered before the stem shoots

up, are eatable, and when dried will make bread. Thus the Roman poet:

——————Me pascunt olivæ,
Me *cichorea*, levesque malvæ. Hor. Lib. I. Od. 31.

MEDICAL VIRTUE.

The virtues of the succory, like those of the dandelion, reside in its milky juice; and in many of the plants of this natural tribe a juice of a similar nature is to be found: therefore what is observed of the effects of the taraxacum applies also to the cichorium: "and we are warranted in asserting," says Dr. Woodville, "that the expressed juice of both these plants, taken in large doses, frequently repeated, has been found an efficacious remedy in consumption, as well as jaundice, and other visceral obstructions."

WILD LETTUCE.

LACTUCA VIROSA.

Class XIX. Syngenesia. *Order* I. Polygamia æqualis.

Essent. Gen. Char. *Receptacle* naked: *Calyx* imbricated, cylindrical, with a membranous margin: *Down* simple, pedicelled: *Seeds* unarmed.

Spec. Char. *Leaves* horizontal, prickly on the keel, obtuse at top, arrow-shaped at the base, oblong-lanceolate; the lower ones sinuate and denticulate.

DESCRIPTION.

This plant rises four feet. It has three different kinds of leaves. Those proceeding from the root are slightly toothed; those from the stem are cut into pinnated lobes; and those attached to the flower-stalks are arrow-shaped, pointed, entire, and minute. The florets are yellow, and small.

HISTORY.

This plant flowers in August and September, is biennial, and grows wild on rubbish and rough banks, in many places in this country.

It smells strongly of opium, and resembles it in some of its

effects; and its narcotic power, like that of the poppy, resides in a milky juice.

The garden lettuce, when in flower, is also very bitter, and abounds with a milky juice, in its taste and smell remarkably like opium, for which, when dried, it has been proposed and used with success as a substitute by Dr. Coxe of Philadelphia. Before it begins to shoot it has none of that bitterness, and contains no milky juice, and probably has not those soporific effects which are commonly ascribed to the use of lettuce.

MEDICAL USE.

An extract prepared from the expressed juice of the leaves of the plant, gathered when in flower, is recommended in small doses in dropsy. Two grains must be begun with four times a day, and gradually increased, till two scruples or more are given daily. In dropsies of long standing, proceeding from visceral obstructions, it has been given to the extent of half an ounce a day. It is said to agree with the stomach, to quench thirst, to be gently laxative, powerfully diuretic, and somewhat diaphoretic. Plentiful dilution is allowed during its operation. Dr. Collin, of Vienna, asserts, that out of twenty-four dropsical patients, all but one were cured by this medicine.

COMMON TANSY.

TANACETUM VULGARE.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. *Receptacle* naked: *Seeds* crowned with a slight margin: *Calyx* imbricated, hemispherical: *Florets* of the ray obsolete, or three-cleft, sometimes wanting.

SPEC. CHAR. *Leaves* doubly pinnatifid, deeply serrate.

DESCRIPTION.

THIS plant rises three feet. The flowers are yellow, and small, resembling a flat hemisphere: florets of the disk bisexual, of the ray female.

HISTORY.

Native of Britain, growing in moist pastures, borders of cornfields, and flowering in July and August.

MEDICAL USE.

Tansy is an aromatic strong bitter, that has been long esteemed as an anthelmintic, and has been principally used for that purpose; it was likewise esteemed a good anti-hysteric remedy, and useful for removing uterine obstructions, and recommended in Culpepper's London Dispensatory, in the year 1659, in gouty cases. In the year 1771, the late Dr. David Clarke, of Edin-

burgh, published, in the third volume of the Edinburgh Essays Physical and Literary, a paper on the gout, in which he recommends the use of an infusion of tansy in that disorder; and he mentions two cases in which it was of use:—

1. A gentleman, under fifty years of age, who had been subject to the gout for about fifteen years, on finding his disorder increase, he about seven years ago had recourse to an infusion of tansy to remove it; he filled every morning a tea-pot, capable of holding an English pint of liquor, with the dried flowers, leaves, and stalks of tansy, and then poured as much boiling water over them as the pot would hold, and let it stand till night, when he drank, at going to bed, the whole of the cold infusion: by following constantly this method he has remained free of the gout for seven years, excepting a slight fit which he had after spraining his ancle. He was not sensible of its operating by stool, by perspiration, or by urine; though Dr. Clarke thought that it acted on his bowels, as he had regularly two stools in the day.

2. Another person, fifty-two years of age, had remained free from the gout for three years, by drinking near a pint of the infusion of tansy daily, and by eating some of the fresh tansy in the morning, while it was in season: before using this remedy he had regularly a fit of the gout, which confined him from one to four months in the winter.

The young tops of tansy in decoction have proved an admirable vermifuge, as also the seeds.

CULINARY PREPARATION.

TANSY PUDDING.

Blanch and pound a quarter of a pound of Jordan almonds; put them into a stewpan, add a gill of the syrup of roses, the crumb of a French roll, some grated nutmeg, half a glass of brandy, two table spoonfuls of tansy juice, three ounces of fresh butter, and some slices of citron. Pour over it a pint and a half of boiling cream or milk, sweeten, and when cold mix it; add the juice of a lemon, and eight eggs beaten. It may be either boiled or baked.

SOUTHERNWOOD.

ARTEMISIA ABROTANUM.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. *Receptacle* subvillous, or naked: *Pappus* none: *Calyx* imbricated, with roundish scales, conniving: No ray to the *Corolla*.

SPEC. CHAR. *Fruticose*: *Leaves* very branchy.

DESCRIPTION.

THIS plant rises three feet. Branches vertical. Leaves numerous, irregularly bipinnate. Pinnæ long, linear, narrow, entire. Flowers very minute, of a greenish yellow, in close terminal spikes, intermixed with leaves.

HISTORY.

This is a perennial shrub, which grows readily in our gardens, though a native of the south of Europe.

Southernwood has a strong smell, which to most people is not

disagreeable; it has a pungent, bitter, and somewhat nauseous taste. These qualities are very completely extracted by alcohol, and the tincture is of a beautiful green colour. They are less perfectly extracted by watery liquors, the infusion being of a light brown colour.

MEDICAL USE.

Southernwood, as well as some other species of the same genus, has been recommended as an anthelmintic; and it has also been sometimes used as stimulant, detergent, and sudorific. Externally it has been employed in discutient and antiseptic fomentations; and under the form of lotion and ointment, for cutaneous eruptions, and for preventing the hair from falling off. But it is at present very rarely used in any way.

OFFICINAL PREPARATION.

DECOCTION FOR FOMENTATIONS. (Decoctum pro Fomento. L.)

Take of the leaves of southernwood, dried,
—— the tops of sea wormwood, dried,
—— camomile flowers, dried, of each one ounce;
—— bay leaves, dried, half an ounce;
—— distilled water, six pints:

Boil them a little, and strain.

These decoctions are merely solutions of a bitter extractive, combined with a little mucilage, and in the others with essential oils. In making them the aromatic substances should not be added until the decoction is nearly completed, for otherwise their flavour would be entirely dissipated.

As fomentations, their virtues depend, in a great measure, on the warm water, which relaxes as a bath; and when the herbs themselves are applied, they act only as retaining heat and moisture for a longer time, and operate on the mind of the patient; but are a less convenient, and hardly more useful fomentation, than cloths wrung out of hot water.

WORMWOOD.

ARTEMISIA ABSINTHIUM.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. Same as the first.

SPEC. CHAR. *Leaves* compound, multifid: *Flowers* sub-globular, pendent: *Receptacle* villous.

DESCRIPTION.

THIS plant rises three feet, and sends off several branches. The leaves are divided into many bluntish segments in a pinnated order, under side downy, of a pale green, and silky softness. Flowers of a brownish yellow, placed in numerous spikes, from the alæ of the leaves, placed alternate.

HISTORY.

This perennial herb grows by the road sides, and on rubbish, in many parts of Britain; and about London it is cultivated for medical use.

MEDICAL USE.

Its smell is strong and disagreeable; its taste intensely bitter, so as to become a proverb. Its active constituents are a bitter

extractive and essential oil. It is used in stomach complaints, and is of great service to persons labouring under hypochondria. It is also employed in intermittent fevers, in cachectic and hydropic affections, in jaundice, and against worms. The extract is a pure and simple bitter. The essential oil is of a dark green colour, and contains the whole flavour of the plant. It is stimulating, and is supposed to be a powerful antispasmodic and anthelmintic. Wormwood was formerly much used for the preparation of medicated wine and ales, and forms purl when infused with the last, which hard drinkers are in the habit of taking in the morning to go through their hard day's labours.

Withering says, the leaves and flowers are very bitter; the roots are warm and aromatic. A considerable quantity of essential oil rises from it in distillation. This oil is used both externally and internally to destroy worms. The leaves, put into sour beer, soon destroy the acescency. They resist putrefaction, and are therefore a principal ingredient in antiseptic fomentations. An infusion of them is a good stomachic, and, with the addition of fixed alkaline salt, a powerful diuretic in some dropsical cases. The ashes afford a more pure alkaline salt than most other vegetables, excepting bean-stalks, broom, and the larger trees. In the Amœn. Acad. vol. ii. p. 160, Linnæus mentions two cases, wherein an essence prepared from this plant, and taken for a considerable time, prevented the formation of stones in the kidneys or bladder; the patients forbearing the use of wine and acids. It might be suspected that, like other bitters, its long continued use must weaken the action of the nervous system, but in these instances no such effect took place. An infusion of it given to a woman that suckles, makes her milk better. It gives a bitterness to the flesh of sheep that eat it.—Horses and goats are not fond of it; cows and swine refuse it. Linn. Turkeys are fond of it.—Mr. Hollefear. A horse ate it. The plant steeped in boiling water, and repeatedly applied to a bruise, will remove the pain in a short time, and prevent the swelling and discoloration of the part.—St.

The great Haller says, that Charles V. used this plant for the gout; and for the same purpose I have employed a decoction of wormwood, and finally by a long use conquered this disease in myself, so that I have had no return. This testimony merits the attention of English physicians.

MUGWORT.

ARTEMISIA VULGARIS.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

Essent. Gen. Char. Same as the last.

Spec. Char. *Leaves* pinnatifid, flat, incised, beneath tomentose: *Racemes* simple, recurved: Five *Florets* in the ray.

DESCRIPTION.

The stalk rises three feet. The leaves are deeply divided into several segments, which are pointed, on the upper side of a deep green, and on the under downy, or covered with a cotton-like substance. Flowers small, purplish, in spikes, alternate, from the alæ of the leaves, which here appear halbert-shaped.

HISTORY.

Native of Britain, flowers from August to September.

MEDICAL VIRTUE.

In some countries it is used as a culinary aromatic. A decoction of it is taken by the common people to cure the ague. The Chinese make use of it in healing wounds, applying the fresh plant bruised.—Osbeck, i. 394. A drachm of the leaves, powdered, was given four times a day, by Dr. Home, to a woman who had been affected with hysteric fits for many years. The fits ceased in a few days. In this patient assafœtida and æther had been given to no purpose.

Moxa is a substance prepared in Japan from the dried tops and leaves of mugwort*, by beating and rubbing them betwixt the hands till only the fine internal lanuginous fibres remain, which are then combed and formed into little cones. These, used as cauteries, are greatly celebrated in eastern countries for preventing and curing many disorders †; but chronic rheumatisms, gouty, and some other painful affections of the joints, seem to be the chief complaints for which they can be rationally employed. The manner of applying the moxa is very simple: the part affected being previously moistened, a cone of the moxa is laid, which being set on fire at the apex, gradually burns down to the skin, where it produces a dark-coloured spot: by repeating the process several times, an eschar is formed of any desired extent, and this on separation leaves an ulcer, which is kept open or healed up as circumstances may require.

It is said that the use of the moxa was originally introduced by the Jesuits ‡; but it is probably of still greater antiquity. From remote times it has been the practice to cauterize the affected parts by various means. Hippocrates for this purpose not only used iron but flax, also a species of fungus §; and the Laplanders still prefer the agaric (Boletus igniarius), which they prepare and usè in a similar way as the Japanese do their moxa ‖. The Ægyptians produced the same effects by means of cotton or linen cloth ¶; and in Spain a moxa is prepared from a species of the echinops.

* This, however, is not the species of artemisia from which the eastern moxa is made; but that prepared from this plant in Germany was found to answer very well. See Eph. Nat. Cur. Dec. 3. A. 7. 8. App. 141.

It has also been made from the down of verbascum.

† For a full account of these see Kæmpfer, Amœn. Exot. p. 502, &c. Also abbé Grosier (Hist. of China), from whom it appears that mirrors of ice or metal were used for the purpose of igniting the moxa; and that the ancient Chinese made paper, and a kind of cloth, of the down of artemisia.

‡ See Recueil d'Observations Curieuses, tom. ii. p. 114.

§ Lib. de Affect. § 30.

‖ Harmens and Fiellstrom Diss. Med. Lapp. in Hall. Collect. Diss. Pract. tom. vi. p. 728.

¶ Prosper Alpinus, lib. iii. c. 12. p. 209.

Extract from Sir William Temple, on Moxa.

Nimeguen, June 18, 1677.

I never thought it would have befallen me to be the first that should try a new experiment, any more than to be author of any new invention; being little inclined to practise upon others, and as little that others should practise upon me. The same warmth of head disposes men to both, though one be commonly esteemed an honour, and the other a reproach. I am sorry the first, and the worse of the two, is fallen to my share, by which all a man can hope is to avoid censure, and that is much harder than to gain applause; for this may be done by one great or wise action in an age, but to avoid censure a man must pass his life without saying or doing one ill or foolish thing.

This might serve the turn, if all men were just; but as they are, I doubt nothing will, and that it is the idlest pretension in the world to live without it; the meanest subjects censuring the actions of the greatest prince; the silliest servants, of the wisest master; and young children, of the oldest parents. Therefore I have not troubled myself to give any account of an experiment I made by your perswasion, to satisfy those who imputed it to folly, rashness, or impatience; but to satisfy you who proposed the thing in kindness to me, and desired the relation of it in kindness to other men.

I confess your engaging me first in this adventure of the moxa, and desiring the story of it from me, is like giving one the torture, and then asking his confession; which is hard usage to an innocent man, and a friend. Besides, having suffered the first, I believe myself to have a right of refusing the other. But I find your authority with me is too great to be disputed in either; and the pretence of public good is a cheat that will ever pass in the world, though so often abused by ill men, that I wonder the good do not grow ashamed to use it any longer. Let it be as it will, you have what you asked, and cannot but say that I have done, as well as suffered, what you had a mind to engage me in. I have told you the story with the more circumstance, because many questioned the disease, that they might not allow of the cure; though the certainty of one, and force of the other, has been enough evidenced by two returns since I left you at the Hague, which past with the same success. The reasonings upon this method, which seem to confirm the experiment, and other remedies for the gout here reflected on, are aimed at the same

end for which you seemed so much to desire this relation. The digressions I cannot excuse otherwise than by the confidence that no man will read them who has not at least as much leisure as I had when I writ them; and whosoever dislikes, or grows weary of them, may throw them away. For those about temperance, age, or their effects and periods in reference to public business, they could be better addrest to none than to you, who have past the longest life with the most temperance, and the best health and humour of any man I know; and having run through so much great and public business, have found out the secret so little known, that there is a time to give it over.

Among all the diseases to which the intemperance of this age disposes it (at least in these northern climates), I have observed none to increase so much within the compass of my memory and conversation as the gout, nor any, I think, of worse consequence to mankind; because it falls generally upon persons engaged in public affairs and great employments, upon whose thoughts and cares (if not their motions and their pains) the common good and service of their country so much depends; the general officers of armies, the governors of provinces, the public ministers in counsels at home, and embassies abroad (that have fallen in my way), being generally subject to it in one degree or other. I suppose the reason of this may be, that men seldom come into those posts till after forty years old, about which time the natural heat beginning to decay, makes way for those distempers they are most inclined to by their native constitutions, or by their customs and habits of life. Besides, persons in those posts are usually born of families noble and rich, and so derive a weakness of constitution from the ease and luxury of their ancestors, and the delicacy of their own education; or if not, yet the plenty of their fortunes from those very employments, and the general custom of living in them at much expense, engages men in the constant use of great tables, and in frequent excesses of several kinds, which must end in diseases when the vigour of youth is past, and the force of exercise (that served before to spend the humour) is given over for a sedentary and unactive life.

These I take to be the reasons of such persons being so generally subject to such accidents more than other men; and they are so plain, that they must needs occur to any one that thinks. But the ill consequence of it is not so obvious, though perhaps

as evident to men that observe; and may be equally confirmed by reasons and examples. It is that the vigour of the mind decays with that of the body, and not only humour and invention, but even judgment and resolution, change and languish with ill constitution of body and of health; and by this means public business comes to suffer by private infirmities, and kingdoms or states fall into weaknesses and distempers by the diseases or decays of those persons that manage them.

Within these fifteen years past, I have known a great fleet disabled for two months, and thereby lose great occasions, by an indisposition of the admiral, while he was neither well enough to exercise, nor ill enough to leave the command. I have known two towns of the greatest consequence lost contrary to all forms, by the governor's falling ill in the time of the sieges. And I remember one great minister that confessed to me, when he fell into one of his usual fits of the gout, he was no longer able to bend his mind or thoughts to any public business, nor give audiences beyond two or three of his own domestics, though it were to save a kingdom; and that this proceeded, not from any violence of pain, but from a general languishing and faintness of spirits, which made him in those fits think nothing worth the trouble of one careful or solicitous thought. And if intemperance be allowed to be the common mother of gout, or dropsy, and of scurvy, and most other lingering diseases, which are those that infest the state, I think temperance deserves the first rank among public virtues, as well as those of private men; and doubt whether any can pretend to the constant steady exercise of prudence, justice, or fortitude, without it.

Upon these grounds whoever can propose a way of curing or preventing the gout (which entered chiefly into those examples I have mentioned of public affairs suffering by private indispositions) would perhaps do a service to princes and states, as well as to particular men; which makes me the more willing to tell my story, and talk out of my trade, being strongly possessed with a belief, that what I have tried, or thought, or heard upon this subject, may go a great way in preventing the growth of this disease where it is but new, though perhaps longer methods are necessary to deal with it when it is old.

From my grandfather's death I had reason to apprehend the stone, and from my father's life the gout, who has been for this

many years, and still continues much afflicted with it*. The first apprehension has been, I confess with me, ever the strongest, and the other hardly in my thoughts, having never deserved it by the usual forms; nor had I ever, I thank God, the least threat from either of them, till the last year at the Hague, being then in the seven-and-fortieth of my age, when, about the end of February, one night at supper, I felt a sudden pain in my right foot, which from the first moment it began, increased sensibly, and in an hour's time to that degree, that though I said nothing, yet others took notice of it in my face, and said they were sure I was not well, and would have had me go to bed. I confessed I was in pain, and thought it was with some sprain at tennis: I pulled off my shoe, and with some ease that this gave me, stirred not till the company broke up, which was about three hours after my pain began. I went away to bed, but it raged so much all night, that I could not sleep a wink. I endured it till about eight next morning, in hopes still of stealing some rest; but then making my complaints, and showing my foot, they found it very red and angry; and to relieve my extremity of pain, began to apply common poultices to it; and by the frequent change of them I found some ease, and continued this exercise all that day, and a great part of the following night, which I passed with very little rest. The morning after my foot began to swell, and the violence of my pain to assuage, though it left such a soreness that I could hardly suffer the clothes of my bed, nor stir my foot but as it was lifted.

By this time my illness being inquired after about the town, was concluded to be the gout; and being no longer feverish, or in any extremity of pain, I was content to see company. Every body that came to visit me, found something to say upon the occasion; some made a jest of it, or a little reproach; others were serious in their mirth, and made me compliments as upon a happy accident and sign of long life: in short, none of the company was in ill humour but I, who had rather by half have had a fever, or a worse disease at that time, where the danger might have been greater, but the trouble and the melancholy would, I am sure, have been less.

Though I had never feared the gout, yet I had always scorned

* The late Dr. Darwin says that intemperance in eating or drinking brings on gout, and this passes from father to son, and can only be eradicated out of the family by temperance.

it as an effect commonly of intemperance; and hated it, as that I thought it made men unfit for any thing after they were once deep engaged in it: besides, I was prest in my journey at that time to Nimeguen by his majesty's commands, to assist at the treaty there. Most of the ambassadors from the several parts Christendom were upon their way; one of my colleagues was already upon the place, and I had promised immediately to follow; for by our commission we were to be two to act in that mediation; and to help at this pinch, I had always heard that a fit of the gout used to have six weeks at the least for its ordinary period. With these comforts about me, and sullenness enough to use no remedy of a hundred that were told me, Dr. Zulichem came to see me (among the rest of my friends), who, I think, never came into company without saying something that was new, and so he did upon this occasion. For talking of my illness, and approving of my obstinacy against all the common prescriptions, he asked me whether I had never heard the Indian way of curing the gout by moxa. I told him no, and asked him what it was. He said it was a certain kind of moss that grew in the East Indies; that their way was, whenever any body fell into a fit of the gout, to take a small quantity of it, and form it into a figure broad at bottom as a twopence, and pointed at top; to set the bottom exactly upon the place where the violence of the pain was fixed; then with a small round perfumed match (made likewise in the Indies) to give fire to the top of the moss, which burning down by degrees, came at length to the skin, and burnt till the moss was consumed to ashes; that many times the first burning would remove the pain; if not, it was to be renewed a second, third, and fourth time, till it went away, and till the person found he could set his foot boldly to the ground and walk.

I desired him to tell me how he had come acquainted with this new operation. He said by the relation of several who had seen and tried it in the Indies, but particularly by an ingenious little book *, written of it by a Dutch minister at Batavia, who being extremely tormented with a fit of the gout, an old Indian

* I suppose Busschof's Treatise of the Gout. This cure is also treated of at large by Wilhelm. ten Rhynd, De Arthrit. p. 106, &c.

See also Ephemerid. Germ. Decad. 1; an. 6, 7; obs. 218 and 224; an. 9, 10; obs. 128; and dec. 2, an. 1, obs. 6 and 27. Ettmull. vol. i. p. 299.

woman coming to see him, undertook to cure him, and did it immediately by this moxa; and after many experiments of it there, had written this treatise of it in Dutch for the use of his countrymen, and sent over a quantity of the moss and matches to his son at Utrecht, to be sold, if any would be persuaded to use them. That though he could not say whether experiment had been made of it here, yet the book was worth reading; and for his part he thought he should try it if ever he should fall into that disease.

I desired the book, which he promised to send me the next morning; and this discourse of Dr. Zulichem busied my head all night. I hated the very name of the gout, and thought it a reproach: and for the good sign people called it, I could not find that mended an ill thing; nor could I like any sign of living long in weakness or in pain. I deplored the loss of my legs, and confinement to my chamber, at an age that left me little pleasure but of walking and of air; but the worst circumstance of all, was the sentence passed upon it of being without cure.

I had past twenty years of my life, and several accidents of danger in my health, without any use of physicians; and from some experiments of my own, as well as much reading and thought upon that subject, had reasoned myself into an opinion, that the use of them and their methods (unless in some sudden and acute disease) was itself a very great venture; and that their greatest practisers practised least upon themselves or their friends.

But for the common remedies of the gout, I found exceptions to them all; the time of purging was past with me, which otherwise I should certainly have tried upon the authority of the great Hippocrates, who says it should be done upon the first motion of the humour in the gout. For poultices, I knew they allayed pain; but withal, that they drew down the humours, and suppled the parts, thereby making the passages wider, and apter to receive them in greater quantity; and I had often heard it concluded, that the use of them ended in losing that of one's limbs, by weakening the joint upon every fit. For plasters that had any effect, I thought it must be by dispersing or repelling the humours, which could not be done without endangering perhaps some other disease of the bowels, the stomach, or the head. Rest, and warmth either of clothes or bathings, I doubted would in a degree have the effects of poultices; and sweating was proper for prevention rather than remedy. So that all I could end in

with any satisfaction was patience; and though I easily resolved of it, yet it was hard to be found in the circumstances of my business as well as of my health.

All this made me rave upon Dr. Zulichem's new operation; and for the way of curing by fire, I found twenty things to give me an opinion of it. I remembered what I had read of the Ægyptians of old, who used it in most diseases; and what I had often heard of that practice still continuing among the Moors of Afric; so that a slave is seldom taken (as both Spaniards and Portuguese affirm) who has not many scars of the hot iron upon his body, which they use upon most distempers, but especially those of the head, and consequently in physic as well as in surgery. In the time of the Incas' reign in Peru (which I take to have been one of the greatest constitutions of absolute monarchy that has been in the world) no composition was allowed by the laws to be used in point of medicine, but only simples proper to each disease. Burning was much in use either by natural or artificial fires; particularly for all illness of teeth, and soreness or swelling of the gums (which they were subject to from their nearness to the sea), they had an herb which never failed of curing it, and being laid to the gums, burnt away all the flesh that was swelled or corrupted, and made way for new that came again as sound as that of a child. I remembered to have had myself, in my youth, one cruel wound cured by scalding medicament, after it was grown so putrefied as to have (in the surgeon's opinion) endangered the bone; and the violent swelling and bruise of another, taken away as soon as I received it, by scalding it with milk. I remembered the cure of chilblanes, when I was a boy, (which may be called the children's gout,) by burning at the fire, or else by scalding brine, that has, I suppose, the same effect. I had heard of curing the stings of adders, and bites of mad dogs, by immediately burning the part with a hot iron, and of some strange cures of frenzies by casual applications of fire to the lower parts; which seems reasonable enough, by the violent revulsion it may make of humours from the head, and agrees with the opinions and practice I mentioned before of Ægypt and Africa. Perhaps blistering in the neck, and hot pidgeons, may be in use among us upon the same grounds; and in our methods of surgery nothing is found of such effect in the case of old ulcers as fire, which is certainly the greatest drawer and drier, and thereby the greatest cleanser that can be

found. I knew very well that in diseases of cattle there is nothing more commonly used, nor with greater success, and concluded it was but a tenderness to mankind that made it less in use amongst us, and which had introduced corrosives and caustics to supply the place of it, which are indeed but artificial fires.

I mention all these reflections to show that the experiment I resolved to make was upon thought, and not rashness or impatience (as those called it that would have dissuaded me from it); but the chief reason was that I liked no other, because I knew they failed every day, and left men in despair of being ever well cured of the gout.

Next morning I looked over the book which Dr. Zulichem had promised me, written by the minister at Batavia. I pretended not to judge of the Indian philosophy or reasonings upon the cause of the gout; but yet thought them as probable as those of physicians here; and liked them so much the better, because it seems their opinion in the point is general among them, as well as their method of curing; whereas the differences among ours are almost as many in both as there are physicians that reason upon the causes or practice upon the cure of that disease. They hold that the cause of the gout is a malignant vapour that falls upon the joint between the bone and the skin that covers it, which being the most sensible of all parts of the body, causes the violence of the pain: that the swelling is no part of the disease, but only an effect of it, and of a kindness in nature, that, to relieve the part affected, calls down humours to damp the malignity of the vapour, and thereby assuage the sharpness of the pain, which seldom fails whenever the part grows very much swelled: that consequently the swellings and returns of the gout are chiefly occasioned by the ill methods of curing it at first: that this vapour falling upon joints which have not motion, and thereby heat enough to dispel it, cannot be cured otherwise than by burning, by which it immediately evaporates; and that this is evident by the present ceasing of the pain upon the second, third, or fourth application of the moxa, which are performed in a few minutes time: and the author affirms it happens often there, that upon the last burning an extreme stench comes out of the skin where the fire had opened it.

Whatever the reasonings were, which yet seemed ingenious enough; the experiments alleged with so much confidence, and to be so general in those parts, and told by an author that writ

like a plain man, and one whose profession was to tell truth, helped me to resolve upon making the trial. I was confirmed in this resolution by a German physician, Dr. Theodore Coledy, who was then in my family, a sober and intelligent man, whom I dispatched immediately to Utrecht to bring me some of the moxa, and learn the exact method of using it from the man that sold it, who was son to the minister of Batavia. He returned with all that belonged to this cure, having performed the whole operation upon his hand by the man's direction. I immediately made the experiment in the manner before related, setting the moxa just upon the place where the first violence of my pain began, which was the joint of the great toe, and where the greatest anger and soreness still continued, notwithstanding the swelling of my foot, so that I had never yet in five days been able to stir it, but as it was lifted.

Upon the first burning I found the skin shrink all round the place; and whether the greater pain of the fire had taken away the sense of a smaller or no, I could not tell; but I thought it less than it was: I burnt it the second time, and upon it observed the skin about it to shrink, and the swelling to flat yet more than at first. I began to move my toe, which I had not done before; but I found some remainders of pain. I burnt it the third time, and observed still the same effects without, but a much greater within; for I stirred the joint several times at ease; and growing bolder, I set my foot to the ground without any pain at all. After this I pursued the method prescribed by the book, and the author's son at Utrecht, and had a bruised clove of garlick laid to the place that was burnt, and covered with a large adhesive plaster to keep it fixed there: and when this was done, feeling no more pain, and treading still bolder and firmer upon it, I cut a slipper to let in my foot, swelled as it was, and walked half a dozen turns about the room, without any pain or trouble, and much to the surprize of those that were about me, as well as to my own. For though I had reasoned myself before-hand into an opinion of the thing, yet I could not expect such an effect as I found, which seldom reaches to the degree that is promised by the prescribers of any remedies, whereas this went beyond it, having been applied so late, and the prescription reaching only to the first attack of the pain, and before the part begins to swell.

For the pain of the burning itself, the first time it is sharp,

so that a man may be allowed to complain: I resolved I would not; but that I would count to a certain number, as the best measure how long it lasted. I told six score and four, as fast as I could; and when the fire of the moxa was out, all pain of burning was over. The second time was not near so sharp as the first, and the third a great deal less than the second. The wound was not raw as I expected, but looked only scorched and black; and I had rather endure the whole trouble of the operation, than half a quarter of an hour's pain in the degree I felt it the first whole night.

After four-and-twenty hours, I had it opened, and found a great blister drawn by the garlick, which I used no more, but had the blister cut, which run a good deal of water, but filled again by next night; and this continued for three days, with only a simple plaster upon it; after which time the blister dried up, and left a sore about as big as a two-pence, which healed and went away in about a week's time longer; but I continued to walk every day, and without the least return of pain, the swelling still growing less, though it were near six weeks before it was wholly gone. I favoured it all this while more than I needed, upon the common opinion, that walking too much might draw down the humour; which I have since had reason to conclude a great mistake, and that if I had walked as much as I could from the first day the pain left me, the swelling might have left me too in a much less time.

The talk of this cure run about the Hague, and made the conversation in other places, as well as in the visits I received while I kept my chamber, which was about a fortnight after the burning. Dr. Zulichem came to me among the rest of the good company of the town, and much pleased with my success, as well from his own great humanity, and particular kindness to me, as from the part he had in being the first prescriber of my cure, and from the opinion it gave him of a common good fortune befallen all that felt, or were in danger of the gout.

Among others he told it to, M. Serinchamps was one, an envoy of the duke of Lorrain's then in town; a person very much and very deservedly esteemed among all the good company in town, and to whom every body was kind upon the score of his own good humour, or his master's ill fortunes: he had been long subject to the gout, and with constant returns of long and violent fits two or three times in a year. He was a man frank and generous, and loved to enjoy health whilst he had it, without mak-

ing too much reflection upon what was to follow; and so when he was well, denied himself nothing of what he had a mind to eat or drink; which gave him a body full of humours, and made his fits of the gout as frequent and violent as most I have known: when they came, he bore them as he could, and forgot them as soon as they were past, till a new remembrance. At this time he lay ill of a cruel fit, which was fallen upon his knee, and with extreme pain: when he heard of my cure, he sent to me first for the relation of it, and upon it, for my moxa, and for Dr. Coleby to apply it. He suffered it; but after his pleasant way roared out, and swore at me all the while it was burning, and asked if I took him for a sorcerer, that I sent to burn him alive. Yet with all this, the pain went away upon it, and returned no more to the same place; but he was something discouraged by a new pain falling some days after upon his elbow on the other side, which gave him a new fit, though gentler and shorter than they used to be.

About the same time one of the maids of my house was grown almost desperate with the tooth-ach, and want of sleep upon it, and was without remedy. The book gives the same cure for certain in that illness, by burning under the ear; and the man who sold it at Utrecht had assured Dr. Coleby he had seen many cures by it in that kind. We resolved to try; which was done, and the pain immediately taken away, and the wench perfectly well, without hearing of it any more, at least while she was in my house!

During the confinement of this fit, I fell into some methods, and into much discourse upon the subject of the gout, that may be perhaps as well worth reflection by such as feel or apprehend it, as what I have told of this Indian cure. In the first place, from the day I kept my chamber, till I left it, and began to walk abroad, I restrained myself to so regular a diet, as to eat flesh but once a day, and little at a time, without salt or vinegar: and to one moderate draught, either of water or small ale. I concluded to trust to abstinence and exercise, as I had ever resolved, if I fell into this disease; and if it continued, to confine myself wholly to the milk diet, of which I had met with very many and great examples, and had a great opinion even in long and inveterate gouts. Besides this refuge, I met with, in my visits and conversation arising upon my illness, many notions or medicines very new to me, and reflections that may be so perhaps

to other men. Old prince Maurice of Nassaw told me, he laughed at the gout, and though he had been several times attacked, yet it never gave him care nor trouble. That he used but one remedy, which was, whenever he felt it, to boil a good quantity of horse dung from a stone horse of the hermelinne colour, as he called it in French, which is a native white, with a sort of a raw nose, and the same commonly about the eyes. That when this was well boiled in water, he set his leg in a pail full of it, as hot as he could well endure it, renewing it as it grew cool for above an hour together. That after it he drew his leg immediately into a warm bed, to continue the perspiration as long as he could, and never failed of being cured. Whether the remedy be good, or the circumstances of colour signify any thing more, than to make more mystery, I know not; but I observed, that he ever had a set of such hermelinne horses in his coach, which he told me was on purpose that he might never want this remedy!

The count Kinski, ambassador from the emperor to the treaty at Nimeguen, gave me a receipt of the salt of hart's-horn, by which a famous Italian physician of the emperors had performed mighty cures upon many others as well as himself, and the last year upon the count Montecuculi: the use of this I am apt to esteem, both from the quality given it of provoking sweat extremely, and of taking away all sharpness from whatever you put it in; which must both be of good effect in the cure of the gout.

The Rhyngrave, who was killed last summer before Mastricht, told me his father the old Rhyngrave, whom I knew very well, had been long subject to the gout, and never used other method or remedy, than upon the very first fit he felt, to go out immediately and walk, whatever the weather was, and as long as he was able to stand, and pressing still most upon the foot that threatened him: when he came home he went to a warm bed, and was rubbed very well, and chiefly upon the place where the pain begun. If it continued, or returned next day, he repeated the same course, and was never laid up with it; and before his death recommended this course to his son, if he should ever fall into that accident.

A Dutchman who had been long in the East Indies, told me in one part of them, where he had lived some time, the general remedy of all that were subject to the gout was rubbing with

hands; and that whoever had slaves enough to do that constantly every day, and relieve one another by turns till the motion raised a violent heat about the joints where it was chiefly used, was never troubled much, or laid up by that disease.

My youngest brother told me he had a keeper very subject to it, but that it never laid him up, but he was still walking after his deer or his stud while he had the fits upon him, as at other times, and often from morning to night, though in pain all the while. This he gave me as one instance, that poor and toiling men have sometimes the gout, and that many more may have it, who take no more notice of it than his keeper did, who yet he confessed used to bring the fits of gout upon him by fits of drinking, which no doubt is a receipt that will hardly fail, if men grow old in the custom.

M. Serinchamps told me, a Lorrain surgeon had undertaken to cure it by a more extraordinary way than any of these; which was by whipping the naked part with a great rod of nettles till it grew all over blistered; and that he had once persuaded him to perform this penance in a sharp fit he had, and the pain in his knees so violent, as helped him to endure this remedy. He said it was cruel, that all where he was whipt, grew so angry, and swelled as well as blistered, that he thought it had given him a fever that night. The next morning the part was all as stiff as a boot, and the skin like parchment: but that keeping it anointed with a certain oil likewise of nettles, it past in two days, and the gout too, without feeling any more pain that fit!

All these things put together, with what a great physician writes of cures by whipping with rods, and another with holly, and by other cruelties of cutting or burning, made me certainly conclude, that the gout was a companion that ought to be treated like an enemy, and by no means like a friend, and that grew troublesome chiefly by good usage; and this was confirmed to me by considering that it haunted usually the easy and the rich, the nice and the lazy, who grow to endure much because they can endure little; that make much of it as soon as it comes, and yet leave not making much of themselves too; that take care to carry it presently to bed, and keep it safe and warm, and indeed lay up the gout for two or three months, while they give out that the gout lays up them. On t' other side, it hardly approaches the rough and the poor, such as labour for meat, and eat only for hunger; that drink water, either pure, or but discoloured with malt;

that know no use of wine, but for a cordial, as it is, and perhaps was only intended: Or if such men happen by their native constitutions to fall into the gout, either they mind it not at all, having no leisure to be sick; or they use it like a dog, they walk on, or they toil and work as they did before, they keep it wet and cold; or if they are laid up, they are perhaps forced by that to fast more than before, and if it lasts, they grow impatient, and fall to beat it, or whip it, or cut it, or burn it; and all this while perhaps never know the very name of the gout.

But to follow my experiment: I past that summer here at Nimeguen, without the least remembrance of what had happened to me in the spring, till about the end of September, and then began to feel a pain that I knew not what to make of, in the same joint, but of my other foot: I had flattered myself with hopes, that the vapour had been exhaled, as my learned authors had taught me, and that thereby the business had been ended: this made me neglect my moxa for two days, the pain not being violent, till at last my foot began to swell, and I could set it no longer to the ground. Then I fell to my moxa again, and burnt it four times before the pain went clear away, as it did upon the last, and I walked at ease, as I had done the first time, and within six days after above a league without the least return of any pain!

I continued well till this spring, when about the end of March feeling again the same pain, and in the same joint, but of the first foot; and finding it grow violent, I immediately burnt it, and felt no more after the third time; was never off my legs, nor kept my chamber a day. Upon both these last experiments I omitted the application of garlick, and contented myself with a common plaister upon the place that was burnt, which crusted and healed in very few days, and without any trouble. I have since continu'd perfectly well to this present June; and with so much confidence of the cure, that I have been content to trouble myself some hours with telling the story, which, it is possible, may at one time or other be thought worth making publick, if I am further confirmed by more time and experiments of my own, or of others. And thereby I may not only satisfy Dr. Zulichem, but myself too, who should be sorry to omit any good I thought I could do to other men, though never so unknown.

But this cure, I suppose, cannot pretend to deal with inveterate gouts; but I have known so great cures, and so many done

by obstinate resolutions of drinking no wine at all*, that I put more weight upon the part of temperance, than any other. And I doubt very much whether the great encrease of that disease in England within these twenty years, may not have been occasioned by the custom of so much wine introduced into our constant and common tables. For this use may be more pernicious to health than that of taverns and debauches, according to the old stile, which were but by fits, and upon set or casual encounters. I have sometimes thought that this custom of using wine for our common drink, may alter in time the very constitution of our nation, I mean the native tempers of our bodies and minds, aud cause a heat and sharpness in our humours, which is not natural to our climate. Our having been denied it by nature, is argument enough that it was never intended us for common use; nor do I believe it was so in any other countries, there being so small a part of the world where it grows; and where it does, the use of it pure being so little practised, and in some places defended by customs or laws. So that Turks have not known it, unless of late years; and I have met with many Spaniards that never tasted it pure in their lives; nor in the time when I was in France, did I observe any I conversed with to drink it unmixed at their meals. The true use of wine, is either as I mentioned, for a cordial; and I believe there is not a better to such as drink it seldom; or else what the mother of Lemuel tells her son, "give strong drink to him that is ready to perish†".

* In this way our famous accoucheur Dr. Clark has been cured.

† It would be happy for mankind if wine were prohibited, and only good, perfect beer used in its place.

SEA WORMWOOD.

ARTEMISIA MARITIMA.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. The same as the first.

SPEC. CHAR. *Leaves* many-cleft, tomentose: *Branches* drooping: *Flowers* oblong, downy, sessile.

DESCRIPTION.

RISES near a foot, the whole plant covered with white down. Leaves irregularly divided into narrow, linear segments, covered with a fine down. Flowers a brown yellow, forming pendent spikes. Florets in the circumference three.

HISTORY.

Native of Britain, plentiful on the sea shore, and flowers in August and September.

MEDICAL VIRTUE.

In its wild state it smells like marum or camphor, but in our gardens is less grateful: beat up with thrice its weight of fine sugar it is made into a conserve, ordered by the London college, and may be taken where the other preparations disgust too much. It acts as a tonic, and is good in worm cases.

WORMSEED.

ARTEMISIA SANTONICUM.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. Same as the first.

SPEC. CHAR. *Stem-Leaves* linear, pinnate-multifid: *Branches* undivided: *Spikes* leaning one way, reflected: *Florets* five.

DESCRIPTION.

THIS rises two feet. The leaves are of a pale green on the upper side, and whitish underneath. Flower larger, yellow, roundish, placed loosely in spikes; floral-leaves strap-shaped.

HISTORY.

Native of Siberia, and flowers in September.

All the British colleges have given this species as the plant which produces these seeds; but the fact is by no means ascertained. The seeds themselves are small, oblong, smooth, and of a greenish or grayish yellow colour. As the whole head is gathered after the seeds are ripe, they are mixed with the scales of the calyces and bits of stalks. Their taste is bitter, and somewhat acrid; their smell strong and disagreeable. Those which come from Aleppo are esteemed the best, and those from Barbary the worst. When they have no smell, and a less intensely bitter taste, and are discoloured, and mixed with a longer kind of seed, they are to be rejected. They are also adulterated with the seeds of tansy and wormwood. The latter are easily known, by having a light yellow colour, and resembling powdered hay more than seeds.

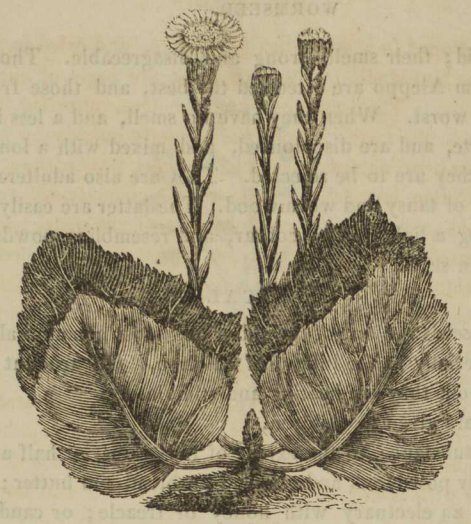
MEDICAL USE.

Wormseeds are one of the oldest and most common althelmintics, especially in the lubrici of children. On account of their essential oil, they are heating and stimulating.

They are given to children,

1. In substance, to the extent of ten grains, or half a drachm, finely powdered, and strewed on bread and butter; or made into an electuary with honey or treacle; or candied with sugar; or diffused through milk, and taken in the morning when the stomach is empty.
2. In infusion or decoction; but to these forms their bitterness is a strong objection.

After they have been used for some days, it is customary to give a cathartic; or they are combined from the beginning with rhubarb, jalap, calomel, sulphate of iron, or muriate of ammonia.



COLTSFOOT.

TUSSILAGO FARFARA.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

Essent. Gen. Char. *Receptacle* naked: *Pappus* simple: *Scales* of the *Calyx* equal, equalling the disk, submembranous.

Spec. Char. *Scape* one-flowered, imbricated: *Leaves* subcordate, angled, toothed.

DESCRIPTION.

This plant rises six or eight inches. The scape is covered with small pointed purplish leaves, like scales. The leaves are very large, irregularly toothed, of a bright green above, downy and white beneath, standing upon long radical footstalks. The flowers are large, yellow; those in the ray are very visible.

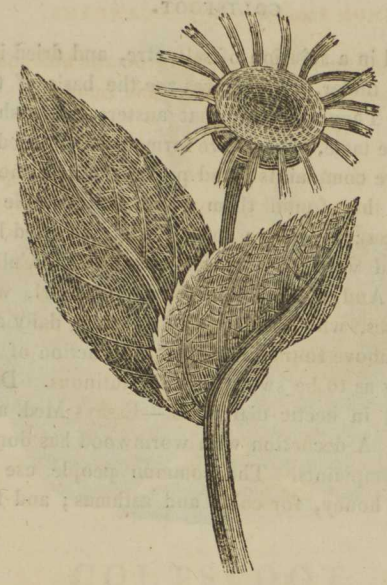
HISTORY.

Native of England, common in moist clayey places; the flowers usually appear before the leaves, and it flowers in March and April.

MEDICAL VIRTUE.

It is the first plant that vegetates in marle or limestone rubble. The downy substance on the under surface of the leaves, wrapped

in a rag, dipped in a solution of saltpetre, and dried in the sun, makes the best tinder. The leaves are the basis of the British herb tobacco. They are somewhat austere, bitterish, and mucilaginous to the taste. They were formerly much used in coughs and consumptive complaints; and perhaps not without reason, for Dr. Cullen has found them to do considerable service in scrophulous cases; he gives a decoction of the dried leaves, and finds it succeed where sea water has failed.—Cullen's Mat. Med. p. 458. And Fuller relates a case of a girl, with twelve scrophulous sores, who was cured by drinking daily as much as she could, for above four months, of a decoction of the leaves made so strong as to be sweetish and glutinous. Dr. Percival found it useful in hectic diarrhœas.—Essays Med. and Exper. vol. ii. p. 224. A decoction with wormwood has done wonders in calculous complaints. The common people use it as tea, sweetened with honey, for colds and asthmas; and find relief, if not a cure.



COMMON INULA, OR ELECAMPANE.

INULA HELENIUM.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. *Receptacle* naked: *Pappus* simple: *Anthers* ending at the base in two setæ.

SPEC. CHAR. *Leaves* embracing, ovate, wrinkled, tomentose: *Scales* of the *Calyx* ovate.

DESCRIPTION.

THIS plant rises three feet. Leaves large, ovate, serrated, full of netted veins. Midrib large, fleshy; the upper leaves sessile. Flowers very large, yellow, terminal: the florets in the ray ligulate, cut at the end into three sharp teeth.

HISTORY.

This is a very large downy perennial plant, sometimes found wild in moist rich soils. It flowers in July and August. The root, especially when dry, has an agreeable aromatic smell: its taste, on first chewing, is glutinous, and, as it were, somewhat

rancid; in a little time it discovers an aromatic bitterness, which by degrees becomes considerably acrid and pungent.

MEDICAL VIRTUE.

The root is esteemed a good pectoral, and, like angelica root, is candied; and these have become now a sweetmeat for children. Dr. Hill says, that from his own experience he has found an infusion of the fresh root, sweetened with honey, to be very successful in the hooping cough. There is another species of this plant called dysenterica, which is good in the flux, and is used by the common people for this purpose.

MOUNTAIN ARNICA.

ARNICA MONTANA.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. *Receptacle* naked : *Pappus* simple: the *Florets* in the ray with five filaments, but without anthers.

SPEC. CHAR. *Leaves* ovate, entire; two opposite cauline leaves.

DESCRIPTION.

RISES a foot. Radical leaves large, ending acute. Cauline leaves sessile, obtusely lance-shaped. Flower large, yellow, terminal. The florets in the ray conspicuous, ending in five sharp teeth.

HISTORY.

Leopards-bane is a very common perennial plant in the alpine parts of Germany, in Sweden, Lapland, and Switzerland. It flowers in July. The flowers, which are of a yellow colour, and compound, consisting entirely of tubular florets, are distinguished from similar flowers, with which they are often mixed, from ignorance or fraud, by the common calyx, which is shorter than the florets, and consists entirely of lancet-shaped scales, lying

parallel, and close to each other, of a green colour, with purple points. The calyx of the different species of inula are composed of bristle-shaped scales, reflected at the points, and beset with hairs. The florets of the genus Hypochæris are strap-shaped.

These flowers have a weak bitterish taste, evidently combined with a degree of acrimony ; and when rubbed with the fingers, have a somewhat aromatic smell. Their active constituents are not sufficiently ascertained. They evidently contain a great deal of resin, and some essential oil.

MEDICAL USE.

In their effects they are stimulating, and supposed to be discutient. In small doses, and properly administered, they possess very beneficial effects, in raising the pulse, in exciting the action of the whole sanguiferous system, in checking diarrhœas, in promoting expectoration, and most particularly in removing paralytic affections of the voluntary muscles; but their use is frequently attended with no sensible operation, except that in some cases of paralysis the cure is said to be preceded by a peculiar prickling, and by shooting pains in the affected parts. When given improperly, or in too large doses, they excite an insupportable degree of anxiety, shooting and burning pains, and even dangerous hæmorrhagies, vomiting, vertigo, and coma. For these dangerous symptoms, vinegar is said to be the best remedy. Haller says, that even gutta serena has yielded to the powers of this medicine.

They have been recommended,

1. In paralytic disorders, in chronic rheumatism, in retention of the urine, from paralysis of the bladder, in amaurosis.
2. In intermittent fevers, combined with Peruvian bark.
3. In dysentery and diarrhœa, but in some cases they have had bad effects.
4. In putrid diseases.
5. In typhoid inflammations.
6. To promote the uterine discharge.
7. And in internal pains, and congestions, from bruises. In the countries where they are indigenous, the flowers of the leopards-bane have long been a popular remedy in these cases.
8. In epilepsy, according to Haller.

Dr. Collin, of Vienna, highly extols this plant. It had long been a desideratum of his to find an European plant of equal

medicinal powers with the Peruvian bark in fevers of the intermitting and putrid kind; and after several fruitless trials of different simples, at last he had the satisfaction to find them in the arnica; for by the flowers of this plant, made into an electuary with honey, he cured more than one thousand patients labouring under the different species of intermittent fevers in the Pasman hospital, from December 1771 to July 1774; and during the following winter the doctor made trial of a watery extract of the flowers, by which he cured thirty quotidians, forty-six tertians, and fifty-eight quartans.

In putrid fevers the doctor experienced equal success with the flowers employed in the way of infusion, with which many hundreds of patients were snatched from the very jaws of death. However, there are some cases where the doctor recommends the root in preference to the flowers, believing the former to possess more cordial, tonic, and antiseptic qualities; and it is accordingly directed in those cases where putridity and debility are more prevalent than fever; also in a malignant dysentery Dr. Collin could relate many hundred instances of the superior efficacy of arnica root, and his practice in this disease was imitated and confirmed by Dr. Dietl.

Dr. Collin further ascertains the medicinal powers which he attributes to this root in thirteen cases of gangrenes, where its antiseptic effects admitted of more evident proof. As the arnica, when first administered, often excites vomiting, or uneasiness at the stomach, it will be necessary to begin with small doses; but by repeating the medicine two or three times, this uneasiness goes off.

They are contraindicated by an inflammatory diathesis, a predisposition to hæmorrhagies, and internal congestions.

They are best exhibited in the form of infusion. One or two scruples may be infused with half a pound of water, and drunk at proper intervals. The flowers should be wrapt up in a piece of linen, as otherwise their down is apt to be diffused in the liquid, and to cause violent irritation of the throat.

The root is exhibited in the same manner and circumstances as the flowers, but it is more apt to excite vomiting. In powder its dose is from five to ten grains.

COMMON CAMOMILE.

ANTHEMIS NOBILIS.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

Essent. Gen. Char. *Receptacle* chaffy: *Pappus* none: *Calyx* hemispherical, nearly equal: *Flowers* of the ray more than five.

Spec. Char. *Leaves* double-pinnated, linear, acute, subvillous.

DESCRIPTION.

This plant rises near a foot. Stem slender, trailing, hairy, of a pale green. Pinnæ divided into three pointed segments. Flowers compound, in the centre yellow, in the ray white, standing singly, terminal. Flowers in the ray usually eighteen, strap-shaped, ending in three sharp teeth.

HISTORY.

Camomile is a perennial plant, indigenous in the south of England, but cultivated in our gardens for the purposes of medicine. Flowers in July and August. The flowers have a strong, not ungrateful, aromatic smell, and a very bitter nauseous taste.

Their active constituents are bitter extractive, and essential oil. To the latter are to be ascribed their antispasmodic, carmi-

native, cordial, and diaphoretic effects; to the former, their influence in promoting digestion.

MEDICAL USE.

Camomile flowers are a very common and excellent remedy, which is often used with advantage in spasmodic diseases, in hysteria, in spasmodic and flatulent colics, in suppression of the menstrual discharge, in the vomiting of puerperal women, in the afterpains, in gout, in intermittents, and in typhus.

No bitter is more common than the camomile: light watery infusions of the flowers are much used to promote vomiting, and to assist the operation of other emetics; and strong infusions of it taken in small doses, from two to four ounces, twice or three times in the day, have been found to be good stomachics, and to assist digestion; and with the addition of a few drops of the diluted vitriolic acid, have been found good remedies for removing feverish complaints; and have at times put a stop to intermitting fevers. Dr. Morton says, that he has cured intermittents which resisted the bark, by giving frequently in the day a scruple of the flowers of chamomile in powder, with ten grains of salt of wormwood, and as much diaphoretic antimony.

As camomile excites the peristaltic motion, it is useful in dysentery, but is not admissible in all cases of diarrhœa. From its stimulating and somewhat unpleasant essential oil, camomile is also capable of exciting vomiting, especially when given in warm infusion; and in this way it is often used to assist the action of other emetics.

Externally, camomile flowers are applied as a discutient and emollient, in the form of clyster or embrocation, in colic, dysentery, and strangulated hernia, &c.

Camomile flowers are exhibited,

1. In substance, in the form of powder, or rather of electuary, in doses of from half a drachm to two drachms, either alone, or combined with Peruvian bark, as for the cure of intermittent fevers.

2. In infusion, in the form of tea. This may either be drunk warm, for promoting the action of emetics, or cold, as a stomachic.

3. In decoction or extract. These forms contain only the extractive, and therefore may be considered as simple bitters.

4. The essential oil may be obtained by distillation. This possesses the antispasmodic powers in a higher degree than the simple flowers, but on the contrary does not possess the virtues depending on the presence of the bitter extractive.

Although this be a fine remedy, and merits all our praise, still it must be remembered, that as the cord too tightly strung, relaxes its tone, so as never to recover again, thus the stomach, too much braced by a long-continued use of camomile tea, loses irrecoverably its tone, and becomes a truly afflicting evil arising from imprudent use of this tonic.

PRESCRIPTIONS.

℞. 1. Take of camomile, in powder, scruple 1,
——— syrup of orange-peel, as much as is sufficient:
Make a bolus, to be taken twice a day, as a tonic.

℞. 2. Take of camomile, in powder - drachms 4,
——— conserve of hips - - drachms 4,
——— syrup of ginger, as much as is sufficient:
Make into an electuary: dose a small tea-spoonful three times a day.

℞. 3. Take of camomile flowers,
——— lemon peel,
——— orange peel, of each, drachms 4,
——— boiling water - - pint 1:
Let them remain for four hours, and strain. To the strained liquor add syrup of ginger, drachms 6. The dose is a wine glass in the morning early, and repeated an hour before dinner, for habits debilitated by drinking, or natural weakness of the stomach.

℞. 4. Take of camomile flowers - - drachms 3,
——— rhubarb, in powder - drachms 2,
——— coriander seeds, bruised, drachm 1:
Make into tea, by adding a quart of boiling water over night. A wine glass is to be taken half an hour before dinner to create an appetite.

SPANISH CAMOMILE,

OR

PELLITORY OF SPAIN.

ANTHEMIS PYRETHRUM.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. The same as the preceding.

SPEC. CHAR. *Stem* simple, one-flowered, decumbent: *Leaves* doubly-pinnated.

DESCRIPTION.

RISES nearly a foot. Pinnæ nearly linear, of a pale green colour. Flowers large, in the disk yellow, in the ray white on the inside, and purple beneath.

HISTORY.

This plant, though a native of warm climates, as Barbary, bears the ordinary winters of this country, and often flowers successively from Christmas to May. The roots also grow larger with us than those with which the shops are usually supplied from abroad. They are seldom so big as the little finger, and

the best are dry, compact, of a brown colour, and not easily cut with a knife.

Pellitory root has no sensible smell; its taste is very hot and acrid, but less so than that of arum; the juice expressed from it has scarce any acrimony, nor is the root itself so pungent when fresh, as after it has been dried. Neumann obtained from 960 parts of the dry root only 40 of alcoholic extract, and afterwards 570 of watery; and by a reverse procedure, 600 of watery, and 20 of alcoholic extract. Both the alcoholic extracts were excessively pungent. Its acrimony, therefore, was derived from a resin.

MEDICAL USE.

The principal use of pellitory in the present practice is as a masticatory, for promoting the salival flux, and evacuating the viscid humours from the head and neighbouring parts; by this means it often relieves the toothach, some kinds of pains of the head, and lethargic complaints. A vinous infusion is also useful in debility of the tongue.

COMMON YARROW.

ACHILLEA MILLEFOLIUM.

Class XIX. Syngenesia. *Order* II. Polygamia superflua.

ESSENT. GEN. CHAR. *Receptacle* chaffy: *Pappus* none: *Calyx* ovate, imbricated: *Florets* of the ray about five.

SPEC. CHAR. *Leaves* bipinnate, naked: the *Segments* toothed: *Stem* above furrowed.

DESCRIPTION.

THIS plant rises a foot. Leaves alternate, bipinnated. Pinnæ pointed. Flowers white, tinged with a little purple beneath, terminal, forming a flat corymbus.

HISTORY.

Native of Britain, common in dry pastures, and flowers from July till October.

MEDICAL VIRTUE.

A table-spoonful of the expressed juice of this plant has, according to Haller, cured a cancer of the breast; it has stopt spitting of blood, and cured the bloody flux; and Dr. Buchwald says, that he experienced great advantage from this herb himself in the bleeding piles. Stahl boasts of it as a specific in

blind piles. It is esteemed a vulnerary; and the great Haller says, that an infusion taken inwardly, together with an outward application of its leaves, cut fine, has very well and speedily succeeded, from a want of the arnica, in dissipating dreadful bruises arising from a fall from a tree. It may perhaps derive its name from the use Achilles made of this plant with his army; for the celebrated Stahl reports, that it readily cicatrizes wounds. There is a species called Ptarmica, from its juice exciting sneezing, and thereby relieving the head.

HOLY THISTLE.

CENTAUREA BENEDICTA.

Class XIX. Syngenesia. *Order* III. Polygamia frustranea.

ESSENT. GEN. CHAR. *Receptacle* bristly: *Pappus* simple: *Florets* of the ray funnel-shaped, longer than those of the disk, irregular.

SPEC. CHAR. *Calyx* doubly-spined, woolly, and involucred: *Leaves* semi-decurrent, with spinous teeth.

DESCRIPTION.

THIS plant rises two feet. Leaves long, elliptical, runcinated or variously serrated, and barbed with sharp points; above a bright green, beneath whitish, and netted. Upper leaves sessile, lower ones on footstalks. Flowers inclosed with an involucre of ten leaves. Florets yellow. Seeds crowned.

HISTORY.

This is an annual plant, indigenous in the Grecian islands, and cultivated in our gardens. It flowers in June and July, and perfects its seeds in the autumn. The herb should be gathered when in flower, quickly dried, and kept in a very dry airy place, to counteract its tendency to rot or grow mouldy. The leaves have a penetrating bitter taste, not very strong or

very durable, accompanied with an ungrateful flavour, from which they are in a great measure freed by keeping. Water extracts in a little time, even without heat, the lighter and more grateful parts of this plant: if the digestion be continued for some hours, the disagreeable parts are taken up. A strong decoction is very nauseous and offensive to the stomach. Rectified spirit acquires a very pleasant bitter taste, which remains uninjured in the extract.

Neumann got from 1920 parts, 270 alcoholic, and afterwards 390 watery extract; and inversely, 600 watery, and 60 alcoholic.

MEDICAL USE.

The virtues of this plant seem to be little known in the present practice. The nauseous decoction is sometimes used to provoke vomiting, and a strong infusion to promote the operation of other emetics. But this elegant bitter, when freed from the offensive parts of the herb, may be advantageously applied to other purposes. Excellent effects have been frequently experienced from a slight infusion of centaurea, in loss of appetite, where the stomach was injured by irregularities. A stronger infusion, made in cold or warm water, if drunk freely, and the patient kept warm, occasions a plentiful sweat, and promotes the secretions in general.

The extract prepared by evaporating the expressed juice, with the addition of a little alcohol, to prevent it from becoming mouldy, has been strongly recommended in the catarrh of children.

The seeds of this plant are also considerably bitter, and have been sometimes used with the same intention as the leaves.

BLUE CARDINAL FLOWER.

LOBELIA SIPHILITICA.

Class XIX. Syngenesia. *Order* VI. Monogamia.

ESSENT. GEN. CHAR. *Calyx* five-cleft: *Corolla* one-petalled, irregular: *Capsule* beneath, two- or three-celled.

SPEC. CHAR. *Stem* erect: *Leaves* ovate-lanceolate, subserrated: *Leaves* of the *Calyx* reflexed.

DESCRIPTION.

THIS plant rises two feet. Leaves sessile, acute. Flowers not compound, numerous, blue, spiked. Leaves of the calyx five, halbert-shaped, fringed at the margin. Corolla funnel-shaped, border five-cleft.

HISTORY.

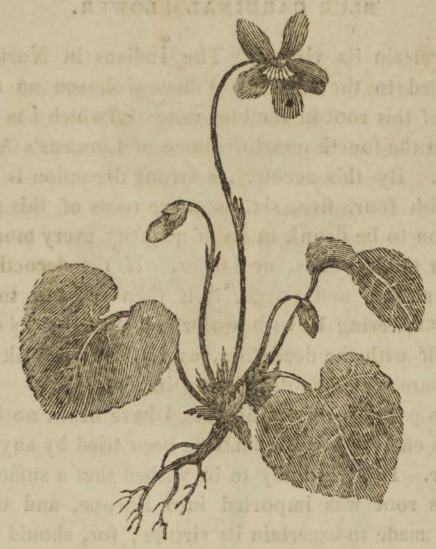
Native of Virginia, and flowers from August till October.

MEDICAL VIRTUE.

The root of this plant, which grows in the moist places of Virginia, stands recommended as a certain remedy for curing the venereal disorder among the wild Indians in North America; but it has not hitherto been brought to Europe, and trials made

of it to ascertain its virtues. The Indians in North America communicated to the late Sir William Johnson an account of the effects of this root in the lues venerea, which has since been published in the fourth quarto volume of Linnæus's Amœnitates Academicæ. By this account, a strong decoction is ordered to be made with four, five, six, or more roots of this plant, and the decoction to be drunk in large quantity every morning for a fortnight or three weeks, or longer. If the decoction should prove too strong, and purge, it is then ordered to be made weaker by lowering it with water. The patient is directed to wash himself with the decoction, as well as to drink it, and to live on a spare vegetable diet during its use.

Since this publication of Linnæus I have heard no further account of its effects, nor of its having been tried by any European practitioner. It is certainly to be wished that a sufficient quantity of this root was imported into Europe, and that proper trials were made to ascertain its virtues; for, should it produce the effects alleged, it would undoubtedly be a very valuable acquisition to the materia medica.



SWEET VIOLET.

VIOLA ODORATA.

Class XIX. Syngenesia. *Order* VI. Monogamia.

Essent. Gen. Char. *Calyx* five-leaved: *Corolla* five-petalled, irregular, behind horned: *Capsule* above, three-valved, one-celled.

Spec. Char. No *Stem*: *Leaves* cordate, stoloniferous.

DESCRIPTION.

A small plant. Leaves veined, crenated, on the upper part smooth, of a shining green, underneath paler, somewhat hairy, standing upon long footstalks. Flowers single, of a deep purple. Calyx composed of five leaves, and the corolla of five petals.

HISTORY.

This plant is perennial, and is found wild under hedges and in shady places; but the shops are generally supplied from gardens. It blows in March and April. Its flowers are so remarkable for their odour and colour, that they have given a name to both. In our markets we meet with the flowers of other species: these may be distinguished from the foregoing by their being larger, of a pale colour, and having no smell.

MEDICAL USE.

They impart their colour and flavour to aqueous liquors: a syrup made from the infusion has long had a place in the shops, and is said to be an agreeable and useful laxative for children, but is chiefly valued as a delicate test of the presence of uncombined acids or alkalies, the former changing its blue to a red, and the latter to a green colour.

OFFICINAL PREPARATION.

Syrup of Violet Flowers. (Syrupus Violæ.)

Take of the fresh flowers of the violets, two pounds,
——— of boiling distilled water, five pints:
Macerate for twenty-four hours, and strain the liquor through a cloth, without pressing, and add the double refined sugar, to make the syrup.

CULINARY PREPARATION.

Vinegar acquires a very agreeable colour and taste by infusing in it some petals of this odoriferous flower.

PANSIE,
OR
THREE-COLOURED VIOLET.
VIOLA TRICOLOR.

Class XIX. Syngenesia. *Order* VI. Monogamia.

ESSENT. GEN. CHAR. Same as the last.

SPEC. CHAR. *Stem* triquetrous, spreading: *Leaves* oblong, cut: *Stipules* pinnatifid.

DESCRIPTION.

THIS plant rises also four or five inches. Leaves variously shaped, ovate or elliptical, crenate, pointed, on long footstalks. Flowers single, on long peduncles of three colours. Calyx five-leaved, pointed. Corolla of five petals, three of these marked with purple lines, lowest petal broad, emarginate.

HISTORY.

Native of Britain; grows in cornfields, or uncultivated grounds; flowers all the summer.

MEDICAL USE.

Though many of the old writers, says Dr. Woodville, on the

materia medica represent this plant as a powerful medicine in epilepsy, asthma, ulcers, scabies, and cutaneous complaints, yet the Viola tricolor owes its present character as a medicine to the modern authorities of Storck*, Metzger †, Hoase, and others; especially as a remedy for crusta lactea. For this purpose, a handful of the fresh herb, or half a drachm of it dried, and boiled two hours in milk, is to be strained, and taken night and morning. Bread with this decoction is also to be formed into a poultice and applied to the part. It merits certainly the attention of the English physicians.

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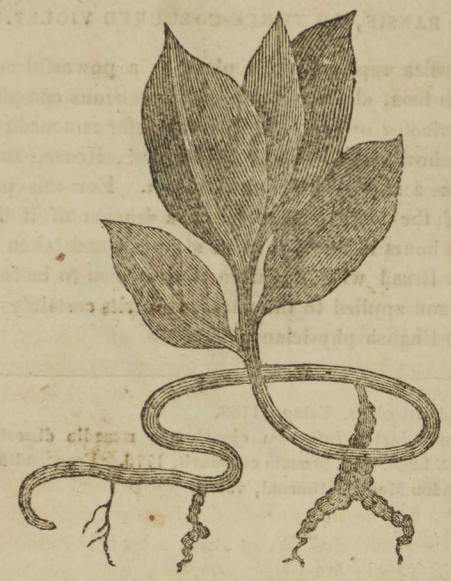
* De Viola tricolore. Erlang, 1782.

† De crusta lactea infantum ejusdemque remedio dissertatio, quam Acad. Scient. Lugd. Gall. præmio coronavit, 1776. Franc. ad Moen. 1779. See also London Medical Journal, vol. ii.



IPECACUAN.

VIOLA IPECACUANHA.

In the index of that incomparable work, the Edinburgh New Dispensatory, by Dr. Duncan, amongst the violets I find viola ipecacuanha; and as the faculty are much divided about what produces the true ipecacuan, we shall retain it in this place, although the root may perhaps belong to different plants.

Ipecacuan, in the language of South America, means vomiting root, and is applied to various vegetables which possess that property in any remarkable degree; hence the confusion and contradictions which have long prevailed concerning the plant which furnishes our officinal ipecacuan: but this confusion is increased by several varieties of ipecacuan being found in the shops.

1st, The ash-coloured, or Peruvian ipecacuan, is a small wrinkled root, bent and contorted into a great variety of figures, brought over in short pieces, full of wrinkles and deep circular fissures quite down to a small white woody fibre that runs in the middle of each piece: the cortical part is compact, brittle, looks smooth and resinous upon breaking: it has very little smell; the taste is bitterish and subacrid, covering the tongue

as it were with a kind of mucilage. This, according to Mutis, is obtained from the Psycotria emetica, and is that commonly used.

2d, The brown ipecacuan is small, and somewhat more wrinkled than the foregoing; its bark is of a brown or blackish colour without, and white within; this is brought from Brazil, and is the root of a cephaëlis, which is perennial, and grows in moist shady situations. A complete monography of it, and an excellent plate, were published, in the sixth volume of the Transactions of the Linnæan Society, by professor Brotero, who calls it the Callicocca ipecacuanha; but the genus callicocca has been united by Willdenow with that of cephaëlis, to which we have therefore referred it. The plate of Brotero corresponds with that published in Woodville's Medical Botany, vol. iii. from a plant sent in spirits from Brazil by governor Philips to sir Joseph Banks, but which unfortunately was not in flower, and also with the rude draught of Piso, who first examined it. It has been sometimes observed, even in a small dose, to produce violent effects.

3d, The white sort is woody, has no wrinkles, and no perceptible bitterness in taste. It is probably the root of a viola.

Besides these, the name of ipecacuan is given to various species of Cynanchum, Asclepias, Euphorbia, Dorstenia, and Ruellia. With regard to their comparative strengths, Decandolle says, that vomiting is produced by 22 grains of the Cynanchum ipecacuanha, 24 of the Psycotria emetica, 60 to 72 of the Viola calceolaria, and one to three drachms of the Viola ipecacuanha.

Ipecacuan was first brought into Europe about the middle of the last century, and an account of it published about the same time by Piso; but it did not come into general use till about the year 1686, when Helvetius, under the patronage of Lewis XIV, introduced it into practice.

Neumann got from 7680 parts, 1440 alcoholic, and afterwards 1880 watery extract; and inversely, 2400 watery, and 600 alcoholic. I find that the tincture of ipecacuan does not redden infusion of litmus, or precipitate solution of gelatine; that it is precipitated by water, by red sulphate of iron, and readily acquires a green colour from excess of the chalybeate; and by infusion of nut-galls. According to Dr. Irvine, the watery solution is more emetic than the alcoholic, the decoction than the distilled water, and the cortical than the ligneous part. Others

have found that the resinous part is more apt to act upon the intestinal canal, and to operate by stool By long-continued boiling it becomes almost inert; and the emetic property of ipecacuan is most effectually counteracted by means of the acetic acid, insomuch that thirty grains of the powder, taken in two ounces of vinegar, produced only some loose stools.

From these experiments it evidently appears that ipecacuan contains cinchonin and a resin, and that its emetic property does not depend upon the latter, although we can scarcely attribute it to the former, as in other substances it does not manifest any emetic property. It is therefore probably owing to some other principle soluble in water and alcohol.

MEDICAL USE.

The primary effect of ipecacuan is that of stimulating the stomach. If the dose be sufficiently large, it excites vomiting, by inverting the peristaltic motion of the stomach and duodenum; in a smaller dose it only produces nausea, and operates by stool; and in still smaller doses it gently stimulates the stomach, increases the appetite, and facilitates digestion. Its secondary effects depend on the sympathy of other parts with the stomach; and in this way only can we explain its action as antispasmodic, diaphoretic, expectorant, and in checking hæmorrhagies. Its beneficial effects, in some cases, also seem to be owing to the general concussion given to the whole system during the action of vomiting.

Ipecacuan, properly administered, often proves serviceable,

1. In intermittent fevers. It has frequently succeeded in stopping these, when given about an hour before an accession was expected, and also when given so as to produce vomiting at the time of an accession, or at the end of the cold stage.

2. In continued fevers. We have never seen more decidedly beneficial effects from the use of any medicine whatever, than from the exhibition of ipecacuan in the commencement of typhus fever. An emetic, succeeded by a diaphoretic regimen, when administered sufficiently early in the disease, very frequently cuts it short at once; and when it fails in this desirable object, it always has a beneficial influence on the progress of the fever.

3. In inflammatory diseases, rheumatism.

4. In exanthematous diseases, when the eruption is disposed to recede.

5. In hæmorrhagies, when given in nauseating doses.

6. In profluvia, especially in dysentery; so much so, that it was formerly esteemed a specific against that disease. But Cullen attributes its good effects, in this instance, to its producing a steady determination of the peristaltic motion of the intestines downwards, when given in repeated small doses.

7. In many spasmodic diseases; in epilepsy, asthma, dyspnœa, pertussis, chronic diarrhœa, hysteria, melancholy, mania.

8. In cachectic diseases, as in some kinds of dropsy.

9. In impetiginous diseases; in jaundice.

10. In local diseases; in amaurosis, and several of the dysorexiæ.

11. Lastly, in every instance when we wish to evacuate the stomach, as when it is overloaded with food, or when poison, especially opium, has been swallowed.

The use of ipecacuan, as an emetic, is contraindicated,

1. Where there is a disposition to hæmorrhagy.

2. Where there is an increased flow of blood towards the head.

3. In very irritable subjects.

4. In pregnant women, and persons afflicted with hernia.

Dr. Donald Monro has favoured us with the following judicious remarks on the employment of this drug.

This root, says this experienced physician, is one of the mildest and safest emetics we are acquainted with, and is employed as such from three or four grains to a scruple or half a drachm. It has likewise been greatly recommended in the cure of dysenteries, given in repeated small doses, from one to three, four, five, or six grains, three or four times in the day.

But these small doses of ipecacuan, though they sometimes puke, and at other times keep up an increased discharge by stool, yet they seldom give effectual relief in the dysentery, not being strong enough to carry off those putrid corrupted humours which are pent up within the bowels, and give rise to many of the troublesome symptoms; besides, they generally keep up such a nausea, sickness, and griping, that it is extremely difficult to prevail with patients to continue, even for a short time, the use of this medicine given in this manner: and in dysenteric cases I have always found it to answer better to give a scruple or half a drachm, or such dose as operated freely as an emetic, and after its operation to give a full dose of some

mild, active, purgative medicine, such as I have recommended in treating on the dysentery, in my Observations on the Diseases of the Army, in order to clear the rest of the alimentary canal.

In habitual diarrhœas, Dr. Fothergill has recommended to give, every morning while the patient is in bed, one grain, one grain and a half, or two grains of it in any common draught, which, he says, sometimes acts as an emetic, and brings up bile; and sometimes gives a few stools extraordinary; and that a small bason of thin gruel should be given to promote its operation; and a cordial anodyne draught, if nothing forbid it, at night to secure rest; and he says, a few doses of these medicines generally restrain the discharge. But he observes that such doses, or larger ones repeated once in six hours, often make the disease worse.

Dr. Akenside recommends in the chronical spasmodic asthma, to give from three to five grains of ipecacuan every morning, or from five to ten grains every other morning, for a month or six weeks together; and says, that though his patients have complained of the fatigue and nauseousness attending it, yet they found such relief as to acquiesce in it, and sometimes to desire to return to it after it had been laid aside.

Of late a notion has prevailed, that the keeping up a nausea by means of small doses of ipecacuan, or of watery solution of emetic tartar, was of great service in promoting the cure of fevers, as well as of fluxes, from a belief that they affected the nervous system, and were capable of exciting the action of the extreme vessels, and of increasing the secretions by the skin, and of the internal organs. Hitherto I have not found this method to answer my expectations, and I have always observed, that such a dose of an emetic as emptied the stomach freely, and gave a shake to the whole frame, had a much better effect than those frequent repeated small doses, which kept the patient in a disagreeable, uneasy situation for hours together; and I am persuaded that no practitioner of experience, who has attended large hospitals, where he has had an opportunity of trying and seeing the effects of different medicines, will ever recommend this nauseating method for general practice in fevers, though it may be of use in some particular cases.

Geoffroy, in the second volume of his Treatise on the Materia Medica, mentions, that six grains of this root generally vomit freely; and that ten grains vomit as powerfully as a scruple, nay, as two scruples; and that therefore he thinks it useless to order larger doses as an emetic. And in the year 1757, Dr. Pye relates, in the first volume of the Medical Observations and Inquiries, published at London, a number of cases of patients labouring under fevers, diarrhœas, and dysenteries, where very small doses of this root, from one to eight grains, are said to have operated as emetics in the most gentle manner, and with the greatest good effects; from whence he concludes that this medicine may be given from half a grain to six grains, with the utmost safety, to persons of all ages, and in the greatest state of debility. Since the publication of Dr. Pye's Observations, I have frequently ordered the ipecacuan, in the small doses he recommends, but they have often failed of operating as I expected; nay, I have often seen ten or twelve grains have little effect, when some days after a scruple has operated freely on the same person; I therefore now almost entirely confine the small doses to children, or people who are very weak; but where the patient is an adult, and strong, and I wish that he should vomit freely, I generally order from fifteen to thirty grains of the powder, or from an ounce to an ounce and a half of the tincture.

Dr. Bergius says that the powder of ipecacuan, given in so small doses as the third part of a grain, every two or three hours, had stopt uterine hæmorrhagies; though he tried it without effect in the hæmoptoe, the piles, and other bleedings.

Joined to opium (as it is in the powder called Dover's) it produces one of the most powerful sudorific medicines we know, which has often produced copious sweat in rheumatic, dropsical, and other cases, after other remedies had failed.

When it was first introduced for the cure of dysenteries, it used to be given from a scruple to half a drachm or a drachm in substance; or in form of such a strong watery infusion as operated powerfully as an emetic. Geoffroy is of opinion that most of its virtues in the cure of dysenteries are contained in the watery infusions; though he says that the root itself is much more efficacious in the dysentery, and in other diseases, than any of its preparations.

Ipecacuan is exhibited,

1. In substance, in powder. Full vomiting will generally be produced in an adult by a scruple or half a drachm; and though less might answer the purpose, fortunately an over-dose is scarcely attended with any inconvenience, as the whole of it is vomited

with the contents of the stomach as soon as it operates. The vomiting is promoted and facilitated by drinking copiously of warm watery fluids. On the contrary, when vomiting is not intended, liquids must be rather drunk sparingly, and the dose must be diminished to a grain or less. In such small doses it is conveniently combined with any proper adjunct, in the form of powder, pill, or bolus.

2. In infusion. One drachm may be infused in four ounces of water, and taken in repeated doses till it operate.

3. Infused in wine.

Ipecacuan not only checks the narcotic effects of opium, and is therefore one of the best antidotes for its poison, but reciprocally the emetic powers of ipecacuan are checked by the addition of opium, and the combination operates by increasing the cuticular discharge. And we have now only to add, that it greatly promotes the action of cathartics.

OFFICINAL PREPARATIONS.

Wine of Ipecacuan. (Vinum Ipecacuanhæ. L. D.)

Take of the root of ipecacuan, bruised, two ounces;
——— Spanish white wine, two pints:
Digest for ten days, (seven days, D.) and strain.

Edin.

Take of ipecacuan, bruised, one ounce;
——— Spanish white wine, fifteen ounces:
Macerate for seven days, and filter through paper.

Both these wines are very mild and safe emetics, and nearly equally serviceable, in dysenteries, with the ipecacuan in substance, this root yielding nearly all its virtues to the Spanish white wine. The common dose is an ounce, more or less, according to the age and strength of the patient.

Powder of Ipecacuan and Opium, or Compound Powder of Ipecacuan, formerly Dover's Powder. (Pulvis Ipecacuanhæ et Opii. E. Pulvis Ipecacuanhæ Compositus, olim Pulvis Doveri. L. D.)

Take of ipecacuan, in powder,
——— Opium, (hard purified, D. L.) of each one part;
——— sulphate of potass, eight parts:
Triturate them together into a fine powder.

The sulphate of potass, from the grittiness of its crystals, is perhaps better fitted for tearing and dividing the tenacious opium than any other salt; this seems to be its only use in the preparation. The operator ought to be careful that the opium and ipecacuan be equally diffused through the whole mass of powder, otherwise different portions of the powder must differ in degree of strength.

This powder is one of the most certain sudorifics, and as such was recommended by Dr. Dover as an effectual remedy in rheumatism. Modern practice confirms its reputation, not only in rheumatism, but also in dropsy, and several other diseases, where it is often difficult, by other means, to produce a copious sweat. The dose is from two to five grains, repeated according as the patient's stomach and strength can bear it. It is proper to avoid much drinking immediately after taking it, otherwise it is very apt to be rejected by vomiting before any other effects are produced. Perspiration should be kept up by diluents.

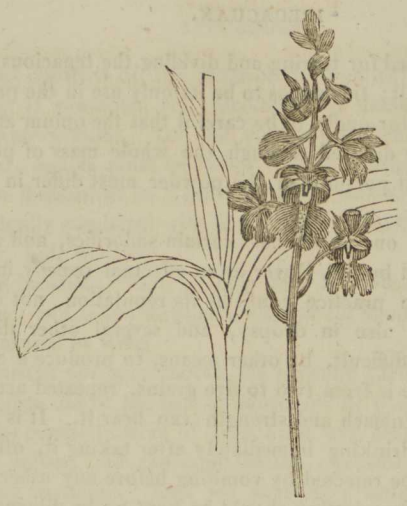
PRESCRIPTIONS.

℞. 1. Take of ipecacuan, in powder - grains 10,
——— tartarized antimony - grain 1:
Mix for an emetic powder, to be taken at seven in the evening. This is the ordinary dose for an adult.

℞. 2. Take of ipecacuan, in powder - - - grains 12,
——— compound powder of tragacanth, grains 12,
——— opiate confection, as much as is sufficient:
To form twelve pills; one is to be taken night and morning for an asthma, or for habitual diarrhœa.

℞. 3. Take of ipecacuan wine - - drachms 7,
——— antimonial wine - - drachm 1,
——— syrup of violets - - drachm 1,
——— rose water - - - drachms 3:
Make into a draught, to be taken at eight in the evening; or for an infant give a tea-spoonful every five minutes until it operates; and half of it for a child of ten or twelve years. It has no taste.

℞. 4. Take of ipecacuan - - - - - - grains 7,
——— compound extract of colocynth, grains 14:
Make into seven pills, of which take one going to bed, or one night and morning, as occasion may require. Excellent for costive habits, but not to be taken by delicate persons, or during pregnancy.



MALE ORCHIS.

ORCHIS MASCULA.

Class XX. Gynandria. *Order* I. Diandria.

Essent. Gen. Char. *Nectary* a horn behind the flower.

Spec. Char. *Bulbs* undivided: *Lip* of the *Nectary* four-lobed, crenulated: *Horn* obtuse: *Petals* behind reflexed.

DESCRIPTION.

The root is a double tuber. Stalk simple, upright, purplish towards the top. Leaves long, pointed, embracing the stem. Flowers purple, terminal, in a regular spike. Bracteas attendant on each flower, purple. Corolla composed of five petals, three outward, two inward, making a kind of helmet. The nectary before petal-form, cut into three segments; middle one emarginate.

HISTORY.

Common in meadows, and flowers in April and May.

MEDICAL USE.

Salep, which is imported here from the East, and formerly held in great estimation, is now well known to be a preparation

of the root of our common field orchis, which was first suggested by Mr. J. Miller, and different methods of preparing it have been since proposed and practised: of these the latest and most approved is that by Mr. Mault, of Rochdale, which we shall transcribe from the words of Dr. Percival, who follows Mr. Mault in recommending the cultivation of a plant in Britain which promises to afford so useful and wholesome a food as the Salep.

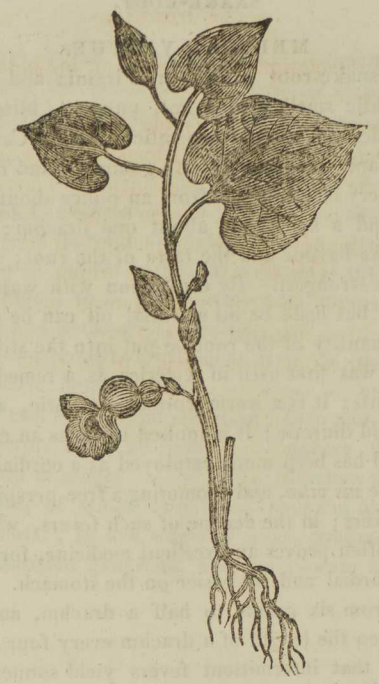
Dr. Percival says, "Mr. Mault has lately favoured the public with a new manner of curing the orchis root, and as I have seen many specimens of his salep at least equal, if not superior, to any brought from the Levant, I can recommend the following, which is his process, from my own knowledge of its success:—The new root is to be washed in water, and the fine brown skin which covers it is to be separated by means of a small brush, or by dipping the root in hot water and rubbing it with a coarse linen cloth. When a sufficient number of roots have been thus cleaned, they are to be spread on a tin plate, and placed in an oven heated to the usual degree, where they are to remain six or ten minutes, in which time they will have lost their milky whiteness, and acquired a transparency like horn, without any diminution of bulk. Being arrived at this state, they are to be removed, in order to dry and harden in the air, which will require several days to effect; or by using a very gentle heat they may be finished in a few hours."

Salep, considered as an article of diet, is accounted extremely nutritious, as containing a great quantity of farinaceous matter in a small bulk, and hence it has been thought fit to constitute a part of the provisions of every ship's company, to prevent a famine at sea. For it is observed by Dr. Percival, that this powder and the dried gelatinous part of flesh, or portable soup, dissolved in boiling water, form a rich thick jelly, capable of supporting life for a considerable length of time. An ounce of each of these articles, with two quarts of boiling water, will be sufficient subsistence for one man a day. Dr. Percival not only recommends the use of salep as other authors have done in diarrhœa, dysentery, dysury, and calculous complaints; but he thinks "in the symptomatic fever, which arises from the absorption of pus, from ulcers in the lungs, from wounds, or from amputations, salep used plentifully is an admirable demulcent, and well adapted

to resist that dissolution of the crasis of the blood which is so evident in these cases."

Les anciens donnoient le satyrion dans du lait pour exciter à l'acte vénérien. Les modernes du tems de Costæus prescrivoient de choisir cette espèce pour ingrédient de l'électuaire diasatyrium, qui étoit destiné aux mêmes usages. La racine possede une odeur spermatique tres-remarquable.—Haller.

Sir John Hill relates, that a fellow whom he knew was once a year before the justices for the damage he did, always apologized for it by saying that orchises were then in plenty, and he could not resist eating them.—Hill's Mat. Med.



SNAKE-ROOT.

ARISTOLOCHIA SERPENTARIA.

Class XX. Gynandria. *Order* IV. Hexandria.

Essent. Gen. Char. *Calyx* one-petalled, tongue-shaped, entire: *Pistilla* six: *Capsule* six-celled, beneath.

Spec. Char. *Leaves* cordate-oblong, flat: *Stem* weak, bending, smooth: *Flowers* single, short.

DESCRIPTION.

This plant rises eight or ten inches in height. Leaves heart-shaped, entire, pointed, veined, upon footstalks. Flowers of a purplish brown colour, base globular, the middle contracted and twisted, extremity spreading.

HISTORY.

Native of Virginia, flowering in August.

MEDICAL VIRTUE.

Virginian snake-root grows in Virginia and Carolina; it has an aromatic smell, and a hot, pungent, bitterish taste; it contains besides its volatile aromatic (which Cartheuser calls camphorated and spirituous), both gummous and resinous principles. A watery infusion gets from an ounce about two drachms of extract, and a spirituous about one drachm; and both of them retain the flavour and the taste of the root; the spirituous tincture is the strongest. By distillation with water it yields its flavour to it; but little or no essential oil can be obtained, unless a great quantity of the root be put into the still.

This root was first used in America as a remedy against the bites of serpents; it is a warm cordial aromatic, and acts as a diaphoretic and diuretic; it is looked upon as an excellent alexipharmic, and has been much employed as a cordial medicine for supporting the *vis vitæ*, and promoting a free perspiration in low and putrid fevers; in the decline of such fevers, when joined to the bark, it often proves an excellent medicine, for it makes the bark more cordial and sit easier on the stomach. The dose in substance is from six grains to half a drachm, and it has been sometimes given the length of a drachm every four hours.

It is found that intermittent fevers yield sooner to the bark mixed with serpentaria than without it, and it enters properly into what is called the compound tincture of bark, as well as into an electuary with bark.

The editor of this work has frequently employed the serpentaria in the low stages of small-pox, and has often found it do wonders in stopping mortification, joined with opium and other cordials; a remarkable instance of which occurred in the case of Mr. Cossart. From a bad fracture mortification came on, and it advanced so rapidly, attended with delirium, that Mr. Astley Cooper and Mr. Luxmore, eminent surgeons, declared all hopes to have vanished, when Dr. Thornton ordered serpentaria, which was given, two drachms of the tincture with ten grains in powder, and five drops of opium, every three hours, which calmed all the outrageous symptoms, and stopt the mortification, and enabled an operation to be performed, by which this gentleman's life was preserved.

TINCTURE OF SNAKE-ROOT. (Tinctura Serpentariæ. L. D.)

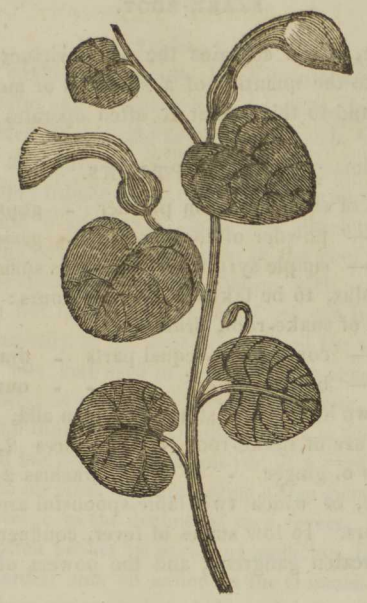
Take of Virginian snake-root, sliced and bruised, three ounces;
——— proof spirit, two pints:
Digest for seven days, and strain.

This tincture, which contains the whole virtues of the root, may be taken to the quantity of a spoonful or more every five or six hours; and to this extent it often operates as an useful diaphoretic.

PRESCRIPTIONS.

℞. 1. Take of snake-root, in powder - grains 15,
——— powder of contrayerva - grains 10,
——— simple syrup, as much as is sufficient:
Made into a bolus, to be taken every four hours:

℞. 2. Take of snake-root, bruised,
——— contrayerva, equal parts - drachms 3,
——— boiling water - - - - ounces 12:
Macerate for two hours, and strain off; then add,
Tincture of snake-root - - ounces 2,
Syrup of ginger - - - - drachms 2:
For a mixture, of which two table-spoonsful are to be taken every three hours. In low stages of fever, confluent small-pox, when sores threaten gangrene, and the powers of life appear sunk.



LONG-ROOTED BIRTHWORT.

ARISTOLOCHIA LONGA.

Class XX. Gynandria. *Order* IV. Hexandria.

ESSENT. GEN. CHAR. Same as the preceding.

SPEC. CHAR. *Leaves* cordate, petioled, entire, obtuse: *Stem* weak: *Flowers* single.

DESCRIPTION.

RISES a foot in height. Leaves heart-shaped, obtuse, veined, alternate, on footstalks. Flowers on peduncles, large, a blue purple, tongue-shaped.

HISTORY.

Native of Europe, and flowers from June till October.

MEDICAL VIRTUE.

The virtues, says Dr. Woodville, which the antients ascribed to aristolochia were very considerable, and it was consequently employed in various diseases, particularly those thought

to proceed from obstructions *, more especially of the uterine system †; hence the name aristolochia is said to have arisen from its supposed emmenagogue powers ‡. And as a warm stimulating medicine Dr. Cullen tells us § he found it useful in some cases of retention and chlorosis, but never in cases of suppression. Aristolochia has also been long very generally commended as a remedy for the gout, and it is the first ingredient in the Portland powder ‖, which has been much celebrated for the cure of this disease. It appears, however, that the long continued use of this powder, which is necessary for preventing the return of arthritic paroxysms, seldom fails to superinduce a premature senile state of body, and to lay a foundation for more fatal diseases ¶. It is probable that the medicinal qualities of this plant are somewhat allied to those of its congener, the Serpentaria; but the sensible properties of the latter demonstrate it to be a more active medicine.

Aristolochia is given in substance from a scruple to two drachms for a dose.

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* Fernelius, Method. Med. lib. vi. cap. 12. p. 163.

† Hippocr. De Nat. Muliebri. p. 572. Oper. Föesii.

‡ Ab *αριστος* et *λοχεια*. It has also been derived from Aristolochius, who is said to have first discovered its virtues.

§ See Mat. Med. vol. ii. p. 83.

‖ The powder is thus prepared: R. Aristol. rotund. gentian. summit. et fol. chamædr. chamæpit. centaur. min. aa p. æ. f. pulvis. A drachm of this powder is directed to be taken every morning (jejuno ventriculo) for the space of three months, when the dose is to be diminished to three quarters of a drachm for the next three months, and afterwards continued for six months in doses of half a drachm, which during the second year is to be taken every other morning.

¶ Brunner, De Pancr. p. 143. Werlhoff. Caut. Med. Tract. i. p. 32. See also Cullen's First Lin.

CLIMBING BIRTHWORT.

ARISTOLOCHIA CLEMATITIS.

Class XX. Gynandria. *Order* IV. Hexandria.

Essent. Gen. Char. Same as the first.

Spec. Char. *Leaves* cordate: *Stem* erect: *Flowers* axillary, crowded together.

DESCRIPTION.

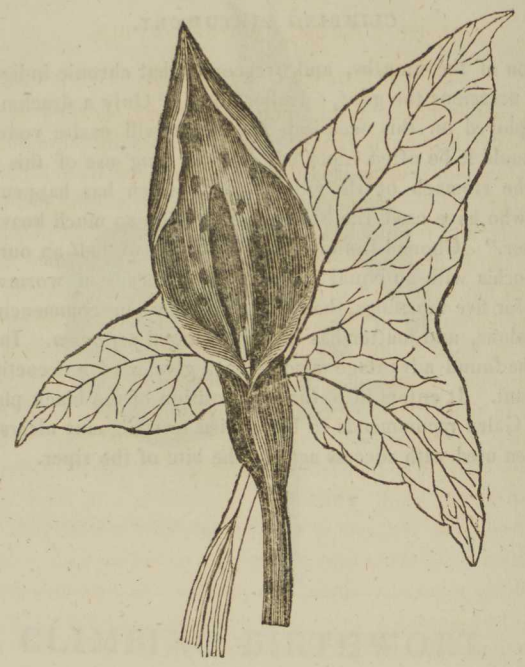
Rises two feet. Leaves on footstalks, alternate, smooth, pear-shaped. Flowers numerous, rising out at the axillæ of the leaves in bunches, of a pale yellow. Corolla tubular, tongue-shaped, at first erect.

HISTORY.

Native of Britain, in woods and hedges, flowering from July till September.

MEDICAL VIRTUE.

The root of this plant, taken inwardly, animates the force of nature when dull, and hence has succeeded in cachexies, suppression of the months, and overcomes that chronic indigestion which occasions the gout. Haller adds, "Only a drachm must be employed on this occasion, for more will excite vomiting; nor should it be often repeated, for the long use of this plant robs the stomach of its villous coat, which has happened to those who have used the stomachic infusion so much boasted at Munster." Chomel found that a decoction of half an ounce of aristolochia with an equal quantity of the heads of wormwood, taken for five mornings, has cured piles when commencing to be fistulous, and matter has been discharged *per anum*. In such cases he found advantage also from a glyster of a decoction of this plant. It enters into the composition of the black plaster, which Galen recommends to be applied to malignant ulcers. It has been used with success against the bite of the viper.



COMMON ARUM, OR WAKE-ROBIN.

ARUM MACULATUM.

Class XX. Gynandria. *Order* V. Polyandria.

ESSENT. GEN. CHAR. *Spatha* monophyllous, hooded: *Spadix* above, naked beneath, female, in the middle stamineous.

SPEC. CHAR. No *Stem*: *Leaves* hastate, entire: *Spadix* clubbed.

DESCRIPTION.

THIS plant rises half a foot or more. Leaves radical, three or four, arrow-shaped, of a deep green spotted with black, standing upon long footstalks. Calyx a spatha, large, inclosing the spadix, above are nectaries like stamens; then appear the anthers, which are clustered together, and of a purple colour; under these the nectaries appear again, and then the germina, which become berries of a bright scarlet, and look very conspicuous in hedges.

HISTORY.

Native of Britain, flowers from June to July.

MEDICAL VIRTUE.

This root is a very acrid, pungent, strong, heating remedy, when fresh; insomuch that it leaves its taste in the mouth for twenty-four hours after it is taken; but it loses its acrimony by being kept. It has been recommended for promoting the watery excretions, and for quickening the circulation in cold phlegmatic habits, and in diseases from viscid phlegm. For some time it had been but little used as an internal remedy, on account of its great acrimony when fresh, and the uncertainty of its strength after it has been kept; but of late years some practitioners have again brought it into use, and recommended it as an efficacious remedy in some cases. In the new edition of Dr. Lewis's Dispensatory, published with additions, the editor says, "I have experienced great benefit from it in rheumatic pains, particularly those of the fixt kind, which were seated deep; in these cases I have given from ten grains to a scruple of the fresh root twice or thrice a day, made into a bolus or emulsion with unctuous and mucilaginous substances, which cover its pungency, and prevent its making any painful impression on the tongue: it generally excited a slight tingling sensation through the whole habit, and when the patient was kept warm in bed, produced a copious sweat." He says, neither wine, water, nor spirits, extract its virtues.

Dr. Lewis observes, that the most convenient method of preparing it for exhibition seems to be by beating the fresh root with gummy resins, and making the mixture into pills; and that in this form it will retain its virtues longer than in that of powder.

Geoffroy recommends this root in a number of disorders: he says that it is a good stomachic, and useful for restoring a lost appetite; that it frequently removes intermittent fevers, and is useful in the chlorosis, jaundice, and hysterical, hypochondriacal, and other disorders; that the dose of both the recent and the dry root is from half a drachm to a drachm; and that by being boiled in vinegar it becomes powerfully diuretic.

Bergius says that he has found great use from this root, mixed with alkaline aromatics and absorbents, in the form of the pulvis ari compositus, in cases of obstinate head-achs, which return at intervals without fever, nay, in which the pulse is frequently slower than natural, and the teeth turn black, as in persons who smoke tobacco; and that he has found this remedy succeed

after bleeding, blistering, scarifications, purges, and mineral waters, have had no effect. And he adds that he has seen the following powders, given every two hours till they purge, remove intermitting fevers, without a relapse: Take of arum root, dried, ten grains, and as much tartarus vitriolatus, and five grains of rhubarb, all in powder, and mix them together. If these powders purged too much at first, he lessened the quantity of the arum.

The pulvis ari compositus, which was in the last Dispensatory, used formerly to be sometimes ordered as a warm cordial diuretic, the length of ten, fifteen, or twenty grains, in dropsies, and other chronic disorders; but as the arum loses its virtues by drying, this powder has been omitted, and its place supplied by a conserve made with the fresh root and sugar. The best method of preserving the arum root is to put it into well-stopt bottles immediately after it has been carefully dried.

OFFICINAL PREPARATION.

CONSERVE OF ARUM. (Conserva Ari. L.)

Take of fresh root of arum, bruised, half a pound;
——— double refined sugar, a pound and a half:
Beat them together in a mortar.

This is one of the best forms for exhibiting this simple, as its virtues are destroyed by drying, and are not extracted by any menstruum. It may be given to adults in doses of a drachm.

COMMON NETTLE.

URTICA DIOICA.

Class XXI. Moncœcia. *Order* IV. Tetrandria.

ESSENT. GEN. CHAR. Male flower. *Calyx* four-leaved: *Nectary* in the centre, asp-shaped. Female flower: *Calyx* two-leaved: *Seed* one, shining.

SPEC. CHAR. *Leaves* opposite, cordate: *Racemes* two.

DESCRIPTION.

RISES from three to four feet. Stem erect, quadrangular, defended with hairs. Leaves large, heart-shaped, pointed, deeply serrated, wrinkled, veined, covered with sharp stings, in pairs, on long footstalks. At the base of the footstalks are four stipulæ. Flowers very inconspicuous.

HISTORY.

Common every where; flowers in July. The stings are very curious microscopic objects: they consist of an exceedingly fine pointed tapering hollow substance, with a perforation at the point, and a bag at the base. When the string is pressed upon,

it readily punctures the skin, and the same pressure forces up from the bag an acrimonious fluid, which instantly enters into the wound, and excites a burning inflammation.—See Hooke, Discoveries by the Microscope, p. 22, tab. 12: Guettard, Mem. de l'Acad. de Sc. de Paris, 1751, p. 350.

The nettle, so greatly despised, merits, however, the attention of the curious. The young shoots, in the spring, are boiled and eaten by the common people instead of cabbage greens.—Lightf. l. c. The stalks may be dressed like flax or hemp for making ropes, nets, cloth, paper, &c.; a practice not uncommon in some parts of Russia and Siberia.—Vide Falk, Beyträge zur Topogr. Kenntniss des Russ. Reichs, vol. ii. p. 254. Vet. Acad. Handl. 1747, p. 59. Petersb. Journ. 1778, p. 370, and others. The nettle is said to be poisonous to frogs; for if the plant be thrown into a vessel where these animals are confined, they soon begin to swell, and in a few days perish.—Vide Hagström Svar om Biskötsel, p. 150. Asses regale on nettles and thistles, which the horse refuses, and in Sweden it is cultivated as food for oxen. It is made into paper, and the roots furnish a beautiful yellow for dyeing. Steel dipt in its juice becomes more flexible.

MEDICAL VIRTUE.

Nettle broth is good against the scurvy. The expressed juice given a table-spoonful four times a day stops hæmoptysis, and lint dipped in it, and forced up the nostrils, has stopt bleeding of the nose, when every other remedy has failed. Cancers have been said to have yielded to the juice of nettles, as much being taken as four ounces a day. Paralytic parts being stung with this herb, have been found to regain vigour, as well as limbs lost from rheumatism. The seeds produce a fine oil, and taken inwardly in moderate quantity excite the system, especially *les plaisirs de l'amour*, and are very forcing, therefore should be cautiously employed. Twenty or thirty grains produce vomiting. Excessive corpulency may be reduced by taking a few of these seeds daily. Lastly, fourteen or fifteen of these seeds, made into a powder, and taken night and morning, will cure the goitre, without injuring the stomach, or health.

COMMON MULBERRY.

MORUS NIGRA.

Class XXI. Monœcia. *Order* IV. Tetrandria.

Essent. Gen. Char. Male flower—*Calyx* four-parted: *Corolla* none: Female flower—*Calyx* four-leaved: *Corolla* none: *Styles* two: *Calyx* berried: *Seed* one.

Spec. Char. *Leaves* cordate, rough.

DESCRIPTION.

This rises to a lofty spreading tree. Leaves heart-shaped, serrated, veined, toothed, peduncled. Flowers male and female on the same tree; the male in catkins above, female beneath. Flowers in June. Fruit ripens in September.

HISTORY.

The mulberry tree is a native of Italy, and is now cultivated generally over Europe, and thrives very well in England. It is

cultivated not only for its fruit, but as yielding food for silk-worms, which can alone thrive on its leaves.

There are two kinds, the white and black, that are cultivated for the sake of the silk-worm; but it is the white mulberry which is commonly cultivated for its leaves to feed silk-worms in France, Italy, &c. In Spain, as the Rev. Mr. Townsend informs us*, they prefer the white mulberry in Valencia, and the black in Granada. The Persians generally make use of the latter, and Mr. Miller was assured by a gentleman who had made trial of both sorts of leaves, that the worms fed with the black mulberry produced much the best silk; but that the leaves of the black should never be given to the worms after they have eaten for some time of the white, lest they should burst.

Sir George Staunton says that the trees he observed in China did not appear to differ from the common mulberry trees of Europe; that some of them were said to bear white, and some red or black fruit, but that often they bore none; and that the tender leaves growing on young shoots of the black mulberry are supposed to be the most succulent †.

Mr. Evelyn remarks, that the leaves of the white mulberry are far more tender than those of the black, and sooner produced by at least a fortnight. Nor is this tree less beautiful to the eye than the fairest elm, and is very proper for walks and avenues. The timber will last in water as well as the most solid oak, and the bark makes good and rough bast ropes ‡.

The white mulberry and the silk-worm were unknown to Theophrastus and Pliny. About the year of Christ 551, two Persian monks, employed as missionaries in some of the Christian churches established in India, penetrated into the country of the Seres, or China. There they observed the labours of the silk-worm, and became acquainted with the art of working up its productions into a variety of elegant fabrics. They explained to the Greek emperor at Constantinople these mysteries, hitherto unknown, or very imperfectly understood in Europe; and undertook to bring to the capital a sufficient number of these wonderful insects. This they accomplished by conveying the eggs of the silk-worm in a hollow cane. They were hatched by the heat of a dunghill; they were fed by the leaves of a wild mul-

* Travels, vol. iii. p. 264. † Embassy, vol. ii. p. 420.
‡ Sylvia, book ii. chap. 1.

berry tree, and they multiplied and worked in the same manner as in those climates where they first became objects of human attention and care. Vast numbers of these insects were soon reared in different parts of Greece, particularly in the Peloponnesus. Sicily afterwards undertook to breed silk-worms with equal success, and was imitated, from time to time, in several towns of Italy. In all these places extensive manufactures were established, with silk of domestic production.

From the reign of Justinian, it was mostly in Greece, and some of the adjacent islands, that silk-worms, which he first introduced into Europe, were reared.

Soon after the conquest of Constantinople by the Venetians in 1204, they attempted the establishment of the silk manufacture in their dominions; and in a short time the silk fabrics of Venice vied with those of Greece and Sicily.

About the beginning of the fourteenth century the Florentine manufactures of silk appear to have been very considerable*.

It came much later into France; the manufacture of silk, though much encouraged by Henry IV, not having been fully established there, till under Louis XIV, by Colbert †. In England, it is well known, that all the endeavours of James I.‡ to

* Robertson's India, p. 89, from Procopius; also p. 110. See Gibbon's Hist. vol. iv. p. 71, under Justinian.

† Evelyn, book ii. chap. 1.

‡ Part of king James's letter to the lord lieutenant of each county in England.

"James Rex,

" We have conceived, as well by the discourse of our own reason, as by information gathered from others, that the making of silk might as well be effected here as it is in the kingdom of France, where the same has of late years been put in practice; for neither is the climate of this isle so far distinct or different in condition from that country, especially from the hither parts thereof, but that it is to be hoped that those things, which by industry prosper there, may by like industry used here, have like success; and many private persons, who for their pleasure have bred of those worms, have found no experience to the contrary, but that they may be nourished and maintained here, if provision were made for planting of mulberry trees, whose leaves are the food of the worms; and thereby we have thought good hereby to let you understand, that although in suffering this invention to take place we do show ourselves somewhat an adversary to our profit, which is the matter of our customs, for silk brought from beyond seas will receive some diminution; nevertheless, when there is a question of so great and

raise mulberry trees, and make silk, utterly failed, and have never since been revived to any extent.

The difference which Linnæus sets down between the black mulberry and the white is, that in the former the leaves are subquinquelobate, bluntish, and rugged, in the latter undivided and shining; the fructification of the former diœcous, of the latter monœcous. These distinctions, however, are not exact. The black mulberry is a larger stronger tree; and the fruit is a dark blackish red, and more acid.

Mr. Miller's account is, that the black mulberry has generally male flowers or catkins on the same tree with the fruit, but it often happens that some of the trees which are raised from seeds have mostly male flowers and produce no fruit; and that he has observed some trees which produced only catkins for many years after they were planted, afterwards have become fruitful. This latter observation agrees with a general remark that I have made

public utility, to come to our kingdom and subjects in general, and whereby (besides multitudes of people of both sexes and all ages) such as in regard of impotency are unfit for other labour, may be set on work, comforted and relieved, we are content that our private benefit shall give way to the public.

"And therefore being persuaded that no well-affected subject will refuse to put his helping hand to such a work, as can have no other private end in us but the desire of the welfare of our people, we have thought good in this form only to require you, as a person of the greatest authority in that county, and from whom the generality may receive notice of our pleasure with more conveniency than otherwise, to take occasion, either at the quarter sessions, or at some other public place of meeting, to persuade and require such as are of ability to buy and distribute in your county the number of ten thousand mulberry plants, which shall be delivered to them at the rate of three farthings the plant, or at six shillings the hundred, containing five score plants.

"And because the buying of the said plants, at this rate, may at the first seem chargeable to our said subjects (whom we would be loth to burthen), we have taken order, that in March or April next there shall be delivered at the said place a good quantity of mulberry seeds, there to be sold to such as will buy them, by means whereof the said plants will be delivered at a smaller price than they can be afforded being carried from hence: having resolved also, in the mean time, that there shall be published in print a plain instruction and direction, both for the increasing the said mulberry trees, the breeding of the silk-worms, and all other things needful to be understood for the perfecting of a work every way so commendable and profitable, as well to the planter as to those that shall use the trade.

"Having now made known unto you the motives, as they stand with

en monœcous trees, that whilst they are young they bear male flowers and very little fruit. Mulberry trees of a certain age are not only more fruitful than young ones, but their fruit is much larger and better flavoured.

This tree grows naturally in Persia, whence it was first brought to the southern parts of Europe. It is now become common in every part of our continent, where the winters are not very severe. In the northern parts of Sweden it will not live in the open air; and in several parts of Germany it is planted against walls, and treated in the same way as peaches and other tender fruits are here.

It was cultivated with us in 1596, by Gerarde. In some of the old kitchen gardens near London there are trees of a very great age, which are very healthy and fruitful, and their fruit is larger and better flavoured than those of younger trees. Bradley says that most of these were planted in the time of king James I., when there was a project of setting up a silk manufacture in England.

public good, wherein every man is interested, because we know how much the example of our own deputy-lieutenant and justices will further this cause, if you and your other neighbours will be content to take some good quantities hereof, to distribute upon your own lands; we are content to acknowledge thus much more in this direction of ours: that all things of this nature, tending to plantations, increase of science, and works of industry, are things so naturally pleasing to our own disposition, as we shall take it for an argument of extraordinary affection towards our person, besides the judgment we shall make of the good dispositions in all those that shall express, in any kind, their ready minds to further the same, and shall esteem it that, in furthering the same, they seek to further our honour and contentment, having seen in a few years past, that our brother the French king hath, since his coming to the crown, both begun and brought to perfection the making of silks in his country, where he hath won to himself honour, and to his subjects a marvellous increase of wealth, would account it no little happiness to us, if the same work, which we began among our people, with no less zeal to their good, than any prince can have to theirs, might in our time produce the fruits which there it hath done.

"Wherefore we nothing doubt but ours will be found as tractable, and apt to further their own good, now the way is shown them by us their sovereign, as those of France have been to conform themselves to the direction of their king.

"Given under our signet, at our palace of Westminster, the 16th of November, in the sixth year of our reign of England, France, and Ireland, and of Scotland the two-and-fortieth."

The trees which are designed to feed silk-worms should never be suffered to grow tall, but rather kept in a sort of hedge; and instead of pulling off the leaves singly, they should be sheared off together with their young branches, which is much sooner done, and is not so injurious to the tree.

It is surprising that this precept of Mr. Miller's has not been attended to, not only in England, but in many of the southern parts of Europe, where making silk is of some consequence, since the practice is followed in the East, and is in itself perfectly rational. Father Loureiro informs us, that in Cochinchina they root up the plants every third year, and make fresh plantations of the cuttings, because the young shoots afford a more delicate food for the worms, and produce a finer silk. Sir George Staunton relates, that in a part of China through which the embassy passed, mulberries were cultivated with the greatest care; and planted in rows, ten or twelve feet asunder, in beds of a moist, but not inundated, loamy earth, thrown about a foot high above the surface. The trees are frequently pruned or dwarfed, in order to make them produce a constant succession of young shoots, and tender leaves. Our planters recommend a dry soil for the mulberry; but it appears from the authors just quoted, that in China and Cochinchina it is cultivated in a very moist one, by the sides of rivers, or where rice is grown in trenches between the rows of trees.

There yet remains a hope that the cultivation of silk may be successfully introduced into these realms.

The thanks of the Society of Arts were given to Mr. Sievers, of Bauenhoff, in Livonia, the author of an excellent paper, on the manner of rearing and treating silk-worms in the northern parts of Europe; and the Society, in consequence of this communication, elected him one of their corresponding members*.

MEDICAL VIRTUES.

The ripe fruit abounds with a deep violet-coloured juice, which in its general qualities agrees with that of the other acido-dulces, allaying thirst, partly by refrigerating, and partly by exciting an excretion of mucus from the mouth and fauces; a similar effect is also produced in the stomach, where, by correcting putrescency, a powerful cause of thirst is removed. This is more especially the case with all those fruits in which the acid much prevails over the saccharine part, as the currant, which we have already noticed, and to which the medicinal qualities of this fruit may be referred; but both these, and most of the other summer fruits, are to be considered rather as articles of diet than of medicine. The London college directs a syrupus mori, which is an agreeable vehicle for various medicines.

* Those who wish for further information on this important subject must consult my Botanical Extracts, or Philosophy of Botany, p. 429.

The bark of the root of the mulberry tree has an acrid bitter taste, and possesses a cathartic power. It has been successfully used as an anthelmintic, particularly in cases of tænia. The dose is half a drachm of the powder.

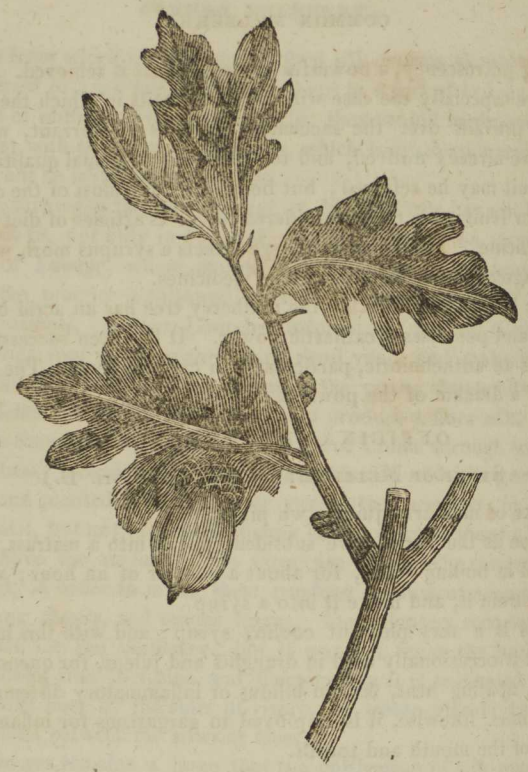
OFFICINAL PREPARATION.

Syrup of Mulberries. (Syrupus Mori. D.)

Take of mulberry juice, two pints;

As soon as the fæces have subsided, put it into a matrass, immersed in boiling water, for about a quarter of an hour; when cold, strain it, and make it into a syrup.

This is a very pleasant cooling syrup; and with this intention it is occasionally used in draughts and juleps, for quenching thirst, abating heat, &c. in bilious or inflammatory distempers. Sometimes, likewise, it is employed in gargarisms for inflammations of the mouth and tonsils.



COMMON OAK.

QUERCUS ROBUR.

Class XXX. Monœcia. *Order* VI. Polyandria.

ESSENT. GEN. CHAR. Male flower—*Calyx* five-cleft: *Corolla* none: *Stamina* ten: Female flower—*Calyx* monophyllous, entire, rough: *Corolla* none: *Styles* two or five: *Seed* one, ovate.

SPEC. CHAR. *Leaves* oblong, smooth, sinuate: *Lobes* roundish: *Nut* oblong.

DESCRIPTION.

THIS tree is the king of the forest, and has a most noble appearance. The leaves have a peculiar shape, being deeply cut, and formed into blunt lobes, standing upon short footstalks. The flowers are inconspicuous, but the fruit afterwards becomes conspicuous, being fixed in a cup, and probably was the first nourishment of man.

HISTORY.

This valuable tree is well known to be a native of Britain, where it has in some instances acquired an extraordinary magnitude: its wood is justly preferred for ship-building.

USES.

Oak saw-dust is the principal indigenous vegetable used in dyeing fustian. All the varieties of drabs, and different shades of brown, are made with oak saw-dust, variously managed and compounded. Oak apples are likewise used in dyeing as a substitute for galls. An infusion of the bark, with a small quantity of copperas, is used by the common people to dye woollen of a purplish blue, which is sufficiently durable.

But the chief use of the bark of this tree is for the process of tanning. Before we detail the process, it may be proper to observe, that raw hides and skins being composed of minute fibres intersecting each other in every direction, the general operation of tanning consists chiefly in expanding the pores, and dissolving a sort of greasy substance contained in them; and then, by means of the astringency and gummy resinous properties of oak bark, to fill and reunite them, so as to give firmness and durability to the whole texture. But this theory has been controverted by some chemists, who suppose that the animal jelly contained in the skin is not dissolved, but unites during the process with the astringent principle of the bark, and forms a combination insoluble in water.

The process of tanning varies considerably, not only in different countries, but even in different parts of the same country. The following is the method most approved and practised in London and its vicinity, where the best leather is generally allowed to be manufactured.

The leather tanned in England consists chiefly of three sorts, known by the name of *butts* or *backs*, *hides*, and *skins*.

Butts are generally made from the stoutest and heaviest ox hides, and are managed as follows: After the horns are taken off, the hides are laid smooth in heaps for one or two days in the summer, and five or six in the winter: they are then hung on poles in a close room called a smoke-house, in which is kept a smouldering fire of wet tan; this occasions a small degree of putrefaction, by which means the hair is easily got off, by spread-

ing the hide on a sort of wooden horse or beam, and scraping it with a crooked knife. The hair being taken off, the hide is thrown into a pit or pool of water to cleanse it from the dirt, &c., which being done, the hide is again spread on the wooden beam, and the grease, loose flesh, extraneous filth, &c. carefully scrubbed out or taken off; the hides are then put into a pit of strong liquor called *ooze* or *wooze*, prepared in pits called *letches* or *taps* kept for the purpose, by infusing ground bark in water; this is termed *colouring:* after which they are removed into another pit called a *scowering*, which consists of water strongly impregnated with vitriolic acid, or with a vegetable acid prepared from rye or barley. This operation (which is called *raising*), by distending the pores of the hides, occasions them more readily to imbibe the ooze, the effect of which is to astringe and condense the fibres, and give firmness to the leather. The hides are then taken out of the scowering, and spread smooth in a pit commonly filled with water, called a *binder*, with a quantity of ground bark strewed between each. After lying a month or six weeks, they are taken up; and the decayed bark and liquor being drawn out of the pit, it is filled again with strong ooze, when they are put in as before, with bark between each hide. They now lie two or three months, at the expiration of which the same operation is repeated; they then remain four or five months, when they again undergo the same process; and after being three months in the last pit, are completely tanned, unless the hides are so remarkably stout as to want an additional pit or layer. The whole process requires from eleven to eighteen months, and sometimes two years, according to the substance of the hide and discretion of the tanner. When taken out of the pit to be dried, they are hung on poles; and after being compressed by a steel pin, and beat out smooth by wooden hammers called *beetles*, the operation is complete; and when thoroughly dry, they are fit for sale. Butts are chiefly used for the soles of stout shoes.

The leather which goes under the denomination of hides is generally made from cow hides, or the lighter ox hides, which are thus managed: After the horns are taken off, and the hides washed, they are put into a pit of water saturated with lime, where they remain a few days, when they are taken out, and the hair scraped off on a wooden beam, as before described; they are then washed in a pit or pool of water, and the loose

flesh, &c. being taken off, they are removed into a pit of weak ooze, where they are taken up and put down (which is technically termed *handling*) two or three times a day for the first week; every second or third day they are shifted into a pit of fresh ooze, somewhat stronger than the former; till at the end of a month or six weeks they are put into a strong ooze, in which they are handled once or twice a week with fresh bark for two or three months. They are then removed into another pit called a *layer*, in which they are laid smooth, with bark ground very fine strewed between each hide. After remaining here two or three months, they are generally taken up, when the ooze is drawn out, and the hides put in again with fresh ooze and fresh bark; where, after lying two or three months more, they are completely tanned, except a few very stout hides, which may require an extra layer: they are then taken out, hung on poles, and being hammered and smoothed by a steel pin, are, when dry, fit for sale.

These hides are called crop hides; they are from ten to eighteen months in tanning, and are used for the soles of shoes.

Skins is the general term for the skins of calves, seals, hogs, dogs, &c. These, after being washed in water, are put into lime pits, as before mentioned, where they are taken up and put down every third or fourth day, for a fortnight or three weeks, in order to dilate the pores and dissolve the gelatinous parts of the skin. The hair is then scraped off, and the flesh and excrescences being removed, they are put into a pit of water impregnated with pigeon dung (called a *grainer* or *mastring*), forming a strong alkaline ley, which in a week or ten days soaking out the lime, grease, and saponaceous matters (during which period they are several times scraped over with a crooked knife to work out the dirt and filth), softens the skins, and prepares them for the reception of the ooze. They are then put into a pit of weak ooze, in the same manner as the hides, and being frequently handled, are by degrees removed into a stronger and still stronger liquor for a month or six weeks, when they are put into a very strong ooze, with fresh bark ground very fine, and at the end of two or three months, according to their substance, are sufficiently tanned; when they are taken out, hung on poles, dried, and fit for sale.

These skins are afterwards dressed and blacked by the currier, and are used for the upper leathers of shoes, boots, &c.

The lighter sort of hides, called dressing hides, as well as horse hides, are managed nearly in the same manner as skins, and are used for coach-work, harness-work, &c.

It has been said that every part of the oak tree contains a great portion of astringent gummy-resinous matter, and will therefore tan leather as effectually as the bark itself. This opinion, which was first published in 1674 by the honourable Charles Howard (Phil. Trans. vol. ix.), has since been countenanced by the celebrated Buffon; who adds, that the bark of birch will answer the purpose of tanning even sole leather, which, it is well known, requires the strongest and most penetrating materials.

A long memoir, written by M. Gleditsch, recommends the leaves, branches, fruit, and flowers, of a vast number of plants as substitutes for oak bark. Heath dried and pulverized, gall nuts, and the bark of birch, are said by M. Gesner to be used in different provinces of Germany. Abbé Nollet informs us, that the leaves of myrrh are used by the tanners in Naples. In Corsica they make use of the leaves of wild laurel dried in the sun and beaten into powder, and in the island of St. Kilda they tan with the tormentil root. In some parts of Italy leather is tanned with myrtle leaves. In Russia it is said that leather is tanned with the bark of willow; and it may here be observed, that a late writer has recommended the extract of bark to be made in America, in order to lessen the expense of freight, &c. in conveying the bark itself to Europe.

In the year 1765 the Society of Arts, &c. granted a premium of 100*l.* for the discovery of a method of tanning with oak sawdust; which method has been adopted in Germany: and the Rev. Mr. Swaine has lately revived the exploded substitute (mentioned by Gleditsch and others) of oak leaves.

Anthony Day, esq. of London, obtained a patent, dated 17th July 1790, for a new method of tanning, "with half the bark in half the usual time." This plan chiefly consists in concentrating the bark into a strong extract, and in some mechanical improvements in the construction of the tan-yard. But neither the one nor the other has yet been adopted.

An ingenious manufacturer in London has, by the application of warm air, conveyed by means of flues from stoves properly constructed, and by other contrivances not generally known, considerably abridged the usual process of tanning. Some experiments have likewise been made with the bark of ash and of horse chesnut.

A substitute for oak bark, the price of which has lately been enormous, is the grand desideratum in the manufacture of leather. Most of these above enumerated have hitherto been found ineffectual; but a patent, bearing date 16th January 1794, has been granted to Mr. Ashton, of Sheffield, Yorkshire, for his discovery of a cheap and expeditious method of tanning leather. This method chiefly consists in applying a preparation of mineral substances instead of oak bark. Those which, on account of their cheapness, are most to be preferred, are the dross of coal-pits, called sulphur stone or pyrites, and the yellow ferruginous earth or red ochre; and, in general, all astringent, sulphureous, or vitriolated substances.

If this discovery, which is yet in its infancy, should prove successful, it may cause a material alteration in the process of this manufacture; and, by reducing the expense, may ultimately be of great advantage to the public. Many other experiments are now making in England for the improvement of tanning; and as there are many persons of ingenuity and knowledge engaged in the leather manufacture, much may be expected from their industry and skill.

The revenue arising from the duty on leather tanned in Great Britain (exclusive of oiled leather) is upwards of 200,000*l.* per annum.

MEDICAL VIRTUE.

The astringent effects of the oak were sufficiently known to the ancients, by whom different parts of the tree were used; but it is the bark which is now directed for medicinal use by our pharmacopœias. To this tree we may also refer the gallæ, or galls, which are produced from its leaves by means of a certain insect.

Oak bark manifests to the taste a strong astringency, accompanied with a moderate bitterness, qualities which are extracted both by water and by rectified spirit. Its universal use and preference in the tanning of leather is a proof of its great astringency, and like other astringents it has been recommended in agues, and for restraining hæmorrhagies, alvine fluxes, and other immoderate evacuations. A decoction of it has likewise been advantageously employed as a gargle, and as a fomentation or lotion in procidentia recti et uteri. Dr. Cullen tells us, that he

has frequently employed the decoction with success in slight tumefactions of the mucous membrane of the fauces, and in prolapsus uvulæ, and cynanche tonsillaris, to which some people are liable upon the least exposure to cold: and in many cases this decoction, early applied, has appeared useful in preventing these disorders. It must be remarked, however, that the doctor almost constantly added a portion of alum to these decoctions.

Some have supposed that this bark is not less efficacious than that of the cinchona, especially in the form of extract; but this opinion now obtains little credit, though there be no doubt that oak bark may have the power of curing intermittents.

Galls, which in the warm climate of the East are found upon the leaves of this tree, are occasioned by a small insect with four wings, called *Cynips querci folii*, which deposits an egg in the substance of the leaf, by making a small perforation through the under surface. The ball presently begins to grow, and the egg in the centre of it changes to a worm; this worm again changes to a nymph, and the nymph to the flying insect above mentioned, which by eating its passage out leaves a round hole: and those which have no holes are found to have the dead insect remaining in them.

Two sorts of galls are distinguished in the shops, one said to be brought from Aleppo, the other from the southern parts of Europe. The former are generally of a blueish colour, or of a grayish, or black, verging to blueness, unequal and watery on the surface, hard to break, and of a close compact texture: the others are of a light brownish or whitish colour, smooth, round, easily broken, less compact, and of a much larger size. The two sorts differ only in strength, two of the blue galls being supposed equivalent in this respect to three of the others.

Galls appear to be the most powerful of the vegetable astringents, striking a deep black when mixed with a solution of ferrum vitriolatum, and therefore preferred to every other substance for the purpose of making ink. As a medicine, they are to be considered as applicable to the same indications as the querci cortex, and, by possessing a greater degree of astringent and styptic power, seem to have an advantage over oak bark, and to be better suited for external use. Reduced to fine powder, and made into an ointment, they have been found of great service in hæmorrhoidal affections. Their efficacy in intermittent fevers was tried by Mr. Poupart, by order of the Academy of Sciences, and from his report it appears that the galls succeeded

in many cases; and also that they failed in many other cases, which were afterwards cured by the Peruvian bark.

Nor are we to wonder at this difference, seeing that Vauquelin has discovered a remarkable chemical difference between the bark and nut galls, the latter precipitating tartrite of antimony and infusion of cinchona, which are not acted upon by the former.

PRESCRIPTIONS.

℞. 1. Take of oak bark, in pieces - ounce ½,
——— boiling water - - - a pint:
Let it remain for four hours, then strain; add to this
Alum in powder - - - - a drachm:
To be used as a lotion cold to limbs after the gout, and also to scrophulous glands.

℞. 2. Take of galls, in powder - drachms 2,
——— hog's lard - - - ounce ½:
Make into an ointment, to be applied by means of lint, to the external piles, or even pressed somewhat up the fundament every night. This has done wonders in the piles, taking at the same time the following:

℞. 3. Take of quassia, in raspings - drachms 2,
——— boiling water - - - pint 1:
Let it remain three hours, strain:
To the strained liquor - - ounces 7,
Add, aromatic confection - - drachm 1,
Ginger, in powder - - - - scruples 2:
Take of this mixture two table-spoonsful at twelve and seven every day.

How to make Ink.

A good and durable black ink may be made by the following directions:—To two pints of water add three ounces of the dark-coloured rough-skinned Aleppo galls in gross powder, and of rasped logwood, green vitriol, and gum arabic, each an ounce. This mixture is to be put into a convenient vessel, and well shaken four or five times a day, for ten or twelve days, at the end of which time it will be fit for use; though it will improve by remaining longer on the ingredients. Vinegar instead of water makes a deeper-coloured ink; but its action on pens soon spoils them.

COMMON WALNUT TREE.

JUGLANS REGIA.

Class XXI. Moncœcia. *Order* VI. Polyandria.

ESSENT. GEN. CHAR. Male flower—*Calyx* one-leafed, scale-like: *Corolla* six-parted: *Filaments* eighteen: Female flower—*Calyx* four-cleft, above. *Corolla* four-parted: *Styles* two: *Drupe* a furrowed nut.

SPEC. CHAR. *Leaves* pinnated: *Pinnæ* oval, smooth, entire.

DESCRIPTION.

THIS is a large beautiful tree. Leaves pinnated, consisting of several pair of opposite pinnæ, with an odd one at the end. Flowers in April and May, and the fruit is ripe in September.

HISTORY.

This tree is a native of Persia, but bears our climate wonderfully well, and produces abundance of a very excellent fruit,

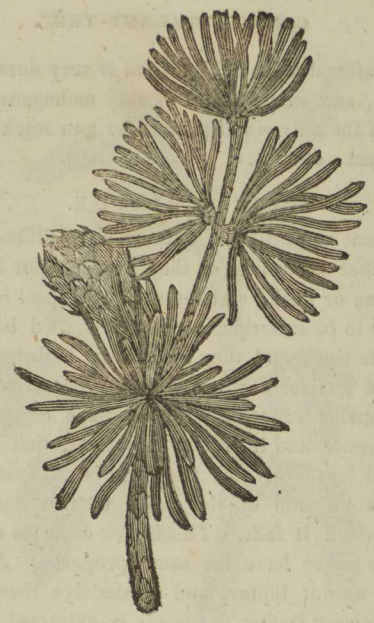
much eaten after dinner. The wood is very durable, and bears a fine polish, and surpasses in beauty mahogany or any other wood. It is the only wood proper for gun stocks, as it is very hard, and does not split.

MEDICAL VIRTUE.

The different parts of the walnuts have different properties, and they differ according as they are more or less ripe. The outer covering or husk, and the shell and peel of the kernels, are esteemed to be sudorific, especially if used before the walnuts are quite ripe; and they have been boiled along with sarsaparilla and guaiacum wood, in the preparation of decoctions used for removing venereal and rheumatic complaints, and for expelling worms; and it may be remarked, that no insect eats the beautiful leaves of this tree, nor is the earth-worm found near it. An infusion of the shells thrown out destroys the worms on which it falls. This liquor destroys even the tape-worm. The leaves have the same property. A brown dye is made of the walnut liquor, and gipsies dye themselves with it, which proves very lasting. An oil is extracted from the nut, said also to destroy even the tape-worm, and it is better than olive oil, and, never freezing, is used by painters. In France they burn it in their lamps.

How to pickle Walnuts.

Scald slightly, and rub off the first skin of a hundred of large walnuts, before they have a hard shell: this may easily be ascertained by trying them with a pin. Put them in a strong cold brine, put new brine the third and sixth days, and take them out and dry them on the ninth. Take an ounce each of long pepper, black pepper, ginger, and allspice; a quarter of an ounce of cloves, some blades of mace, and a table-spoonful of mustard-seeds: bruise the whole together, put into a jar a layer of walnuts, strew them well over with the mixture, and proceed in the same manner till all are covered. Then boil three quarts of white wine vinegar, with sliced horse-radish and ginger, pour it hot over the walnuts, and cover close. Repeat the boiling of the vinegar and pour it hot over, three or four days, always keeping the pickle closely covered; add at the last boiling a few cloves of garlic, or shalots. In five months they will be fit for use.



COMMON WHITE LARCH.

PINUS LARIX.

Class XXI. Monœcia. *Order* IX. Monadelphia.

Essent. Gen. Char. Male flower—*Calyx* four-leaved: *Corolla* none: *Stamens* many: *Anthers* naked. Female flower—*Calyx* a strobile: *Scales* two-flowered: *Corolla* none: *Pistil* one: *Fruit* a nut, having a membranous wing.

Spec. Char. *Leaves* fascicled, deciduous: *Cones* ovate-oblong: *Margins* of the *Scales* reflexed, jagged: *Bracteas* guitar-shaped.

DESCRIPTION.

This is a small and beautiful tree, whose branches are pendent, with a whitish bark. The leaves are slender, soft, of a bright green colour, and placed in bundles. The cones are upright, small, ovate, covered with obtuse scales, from beneath which the bracteas appear.

HISTORY.

It is a native of Switzerland and Germany, flowering in March

and April, and is much cultivated in England. The Venice turpentine issues spontaneously through the bark of this tree, but is more commonly obtained by wounding the bark at the distance of about two feet from the ground, and inserting into the wound a small canula, through which the turpentine flows into proper vessels, which are placed for its reception. Turpentines have different appellations, chiefly according to the country from which they are procured.

Balsam of Canada, from the Pinus balsamea, and Pinus Canadensis.

Resina liquida Pini balsameæ. E. Balsamum Canadense. L. D.

Cyprian turpentine, from the Pistacia terebinthus.

Terebinthina Chia. L.

Strasburgh turpentine, from the Pinus picea.

Venice turpentine, from the Pinus larix.

Resina liquida Pini laricis. E. Terebinthina Veneta. L.

Common turpentine, from the Pinus sylvestris.

Terebinthina vulgaris. L. D.

Hungarian balsam, from the Pinus sylvestris, var. Mughos.

Carpatian balsam, from the Pinus cembra.

None of these are properly balsams, which term is now confined to those resinous substances which contain benzoic acid. The Edinburgh college have denominated them liquid resins, the most correct appellation which they have yet received.

All these species of turpentine possess the same general properties. They are more or less fluid, with different degrees of transparency; of a whitish or yellowish colour; a penetrating smell, and a warm, pungent, bitterish taste. They are entirely soluble in alcohol, combine with fixed oil, and impart their flavour to water; but are not soluble in it. They are decomposed by a moderate heat, being separated into an essential oil and a resin, and are exceedingly inflammable, burning with a large white flame, and much smoke.

Each species has some peculiarities. The Canadian is reckoned the best, and next to it the Chian. They are more transparent, and have a more agreeable flavour than the other kinds. The common turpentine, as being the most offensive, is rarely given internally; its principal use is in plasters and ointments among farriers, and for the distillation of the essential oil.

MEDICAL USE.

Taken internally, they are active stimulants, open the bowels, and increase the secretion of urine, to which they give the smell of violets, even though applied only externally. In all cases accompanied with inflammation they ought to be abstained from, as this symptom is increased, and not unfrequently occasioned, by them. They are principally recommended in gleets, the fluor albus, and the like. Their dose is from a scruple to a drachm and a half. They are most commodiously taken in the form of a bolus, or blended with watery liquors, by the mediation of the yolk of an egg, or mucilage. They may be also given in the form of electuary, mixed with twice their weight of honey, and in the dose of a drachm of the compound twice or thrice a day, or of clyster, half an ounce being well triturated with the yolk of an egg, and mixed with half a pound of gruel or decoction of camomile. We are told by Dr. Cullen, that half an ounce or an ounce of Venice turpentine, triturated with the yolk of an egg, and diffused in water, may be employed in the form of an injection, as the most certain laxative in colics, and other cases of obstinate costiveness. When turpentine is carried into the blood-vessels, it stimulates the whole system; hence its use in chronic rheumatism and paralysis. Turpentine readily passes off by urine, which it imbues with a peculiar odour; also by perspiration, and probably by exhalation from the lungs: and to these respective effects are to be ascribed the virtues it may possess in gravelly complaints, scurvy, and pulmonic disorders. In all these diseases, however, and especially the last, this medicine, as well as some of the gums and balsams of the terebinthinate kind, by acting as stimulants, are often productive of mischief, as was first observed by Boerhaave, and since by Fothergill.

Turpentine has been much used in gleets and fluor albus; its efficacy in the former of these disorders Dr. Cullen ascribes to its inducing some degree of inflammation of the urethra; in proof of which he says, "I have had some instances both of turpentine and balsam of copaiva producing a manifest inflammation in the urethra, to the degree of occasioning a suppression of urine; but when these effects went off, the gleet, which had subsisted for some time before, was entirely cured."

The essential oil, in which the virtues of turpentine reside, is not only preferred for external use, as a rubifacient, &c. but

also internally as a diuretic; and by Pitcairn and Cheyne as a remedy for the sciatica; but few stomachs are able to bear it in the doses they direct.

Turpentine, so much used formerly as a digestive application, is in modern surgery almost wholly exploded.

OIL OF TURPENTINE. (Oleum Terebinthinæ. L. D.)

Take of common turpentine, five pounds:
——— water, four pints:
Distil the turpentine with the water in a copper alembic. After the distillation of the oil, what remains in the retort is yellow resin.

RECTIFIED OIL OF TURPENTINE. (Oleum Volatile Pini Purissimum, olim Oleum Terebinthinæ Purissimum. E. Oleum Terebinthinæ Rectificatum. L. D.)

Take of oil of turpentine, one pound (two pints, D.);
——— water, four pints (four pints, D.):
Distil a pint and a half of oil, D.) (as long as any oil comes over, E.)

This rectified oil, which in many pharmacopœias is styled ethereal, is said not to have its specific gravity, smell, taste, or medical qualities, much improved by this process, which is both tedious and accompanied with danger. It must be conducted with very great care; for the vapour, which is apt to escape through the junctures of the vessels, is very inflammable.

PRESCRIPTIONS.

℞. 1. Take of rectified oil of turpentine - drops 14,
——— mucilage of gum arabic, as much as is sufficient,
——— milk of almonds - - - ounce $1\frac{1}{2}$,
——— rose water - - - - - drachms 2,
——— syrup of Tolu - - - - - drachm $\frac{1}{2}$:
Make into a draught, to be taken night and morning. The common form of ordering this.

℞. 2. Take of rectified oil of turpentine - drops 25,
——— vitriolic ether - - - - scruple 1,
——— mucilage of gum arabic - drachms 3,
——— syrup of poppies - - - drachm 1,
——— rose water - - - - - ounces $1\frac{1}{2}$:
Make into a draught, to be taken at bed-time. For lumbago and sciatica.

SILVER FIR TREE.

PINUS PICEA.

Class XXI. Monœcia. *Order* IX. Monadelphia.

ESSENT. GEN. CHAR. The same as the last.

SPEC. CHAR. *Leaves* solitary, flat, above pointed, below emarginate: *Scales* of the *Cone* obtuse, embracing.

DESCRIPTION.

A MODERATE sized tree. Leaves on the under side marked with white lines, lying close, and so numerous as to conceal the stem. Cones long, when young possessing a membranous appendage, which drops off as they become matured.

HISTORY.

Native of Switzerland and Germany, and cultivated in this country. Although the learned Dr. Woodville and several other writers on the materia medica refer the common turpentine to the Pinus sylvestris, and the Terebinthina argentoratensis or Strasburg turpentine, to the silver fir tree; yet, upon the authority of Murray, who follows Du Hamel and Haller, we have

ascribed the Terebinthina vulgaris to the pine here figured, which pours out the turpentine so freely, that it is seldom necessary to make incisions through the bark for the purpose.

MEDICAL USE.

Decoctions of the wood and tops of these trees are often employed in the northern countries for promoting the secretions by the kidneys and the skin, and for cleaning and healing internal ulcers, particularly of the urinary passages.

In the third edition of Dr. Lind's Treatise on the Scurvy, part ii. chap. 4. we have several instances mentioned of the troops and seamen of Russia and of Sweden being cured of the scurvy by the decoctions of the fir tops; and it is well known that beer made with decoctions or extracts of the spruce, of the fir, and of other species of the pine tree, have been found to be good remedies both for preventing and curing the scurvy.

NORWAY SPRUCE FIR TREE.

PINUS ABIES.

Class XXI. Monœcia. *Order* IX. Monadelphia.

ESSENT. GEN. CHAR. Same as the first.

SPEC. CHAR. *Leaves* solitary, nearly square, acute, distichous: *Branches* beneath naked: *Cones* cylindrical.

DESCRIPTION.

A SMALL tree. Leaves short, upon the older branches incline in opposite directions. Cones cylindrical, dark-coloured.

HISTORY.

This tree is supposed to be native of Scotland, common in Norway, and flowers in May.

Upon an incision being made into the bark of this tree, a clear tenacious fluid issues, which concretes into a resinous substance known by the name of resina abietis. This, after being boiled in water, and strained through a linen cloth, is called in the Pharmacopœias Pix burgundica, or Burgundy pitch. But if the

boiling of the native resin is continued till the water is wholly evaporated, and wine vinegar is at this time added, a substance named Colophonium is formed.

Burgundy pitch, which is chiefly imported from Saxony, is of a solid consistence, yet somewhat soft, of a reddish brown colour, and not disagreeable in smell. It is entirely confined to external use, and was formerly an ingredient in several ointments and plasters. In inveterate coughs, affections of the lungs, and other internal complaints, plasters of this resin, by acting as a topical stimulus, are frequently found of considerable service.

Real Burgundy pitch is collected, according to Tingry, from the Pinus picea, or spruce fir tree. The resinous juice which exudes from this species is less fluid, and less transparent, than the proper turpentines. It is collected by the peasants, strained through cloths, and put into barrels. If its consistence be too thick, it is mixed over the fire with a little turpentine and oil of turpentine.

From the Pinus abies, and also from the Pinus sylvestris, in warm seasons and climates, a resinous juice exudes spontaneously, which hardens into tears by exposure to the air. It is the Thus of the London Pharmacopœia, the Resina alba of the Dublin, or common frankincense. It is a solid brittle resin, brought to us in tears or masses, of a brownish or yellowish colour on the outside; internally whitish, or variegated with whitish specks, of a bitterish, acrid, not agreeable taste, with little smell.

To obtain the products of the second kind, a series of wounds is made through the bark into the wood, beginning at the bottom, and rising gradually upwards, until a stripe of the bark, about nine feet high, be removed, which is commonly effected in about four years. The same operation is then repeated on the opposite side. The operation is then recommenced close to the edge of the former wound, which by this time is nearly closed. A tree worked in this manner will survive, and furnish turpentine, for near a century. The juice which flows from these wounds during summer is collected in a small cavity, formed in the earth at the bottom of the incisions, from which it is occasionally removed into proper reservoirs previous to its purification. As the trees exude very little juice during cold weather, no new incisions are made in winter; but the old ones get covered with a soft resinous crust, (called *barras*, when it is

impure, and mixed with bits of bark, dust, and sand; *gallipot*, when collected with more care; or *white incense*, when it is allowed to remain so long exposed that it becomes resinified); which is scraped off, and also collected for subsequent purification.

All these products are purified by liquefaction and filtration. They consist almost entirely of essential oil and a resin, and differ only in the proportions, the turpentine containing the largest proportion of oil, and the gallipot of resin.

Although gallipot contains essential oil, the quantity is so small, that it is never subjected to distillation, but is purified by melting it with a very gentle fire, and filtrating it. By this process it still contains essential oil, and is often sold by the name of Burgundy pitch. If boiling water be added to it after it is strained, but while it is still fluid, and they be agitated together till the mass cools, we have a yellow resin, which, from still containing some essential oil, is preferred to that prepared by a similar process from the residuum of the distillation of turpentine.

A simple mixture of gallipot and barras, made without heat, is often sold under the name of Burgundy pitch, but the mass resulting from this combination soon becomes friable. It has neither the unctuosity, viscidity, tenacity, nor smell, which distinguish the real kind.

OFFICINAL PREPARATIONS.

Compound Burgundy Pitch Plaster. (Emplastrum Picis Burgundicæ Compositum. L.)

Take of Burgundy pitch, two pounds;
——— ladanum, one pound;
——— yellow resin,
——— yellow wax, of each four ounces;
——— expressed oil of mace, one ounce:

To the pitch, resin, and wax, melted together, add first the ladanum, and then the oil of mace.

Cummin Plaster. (Emplastrum Cumini. L.)

Take of cummin seeds,
——— caraway seeds,
——— bay berries, of each three ounces;
——— Burgundy pitch, three pounds;
——— yellow wax, three ounces;

Put the pitch and wax together, and mix with them the rest of the ingredients, powdered, and make a plaster.

This plaster has been recommended as a moderately warm discutient, and is directed by some to be applied to the hypogastric region, for strengthening the viscera and expelling flatulencies.

Aromatic Plaster. (Emplastrum Aromaticum. D.)

Take of frankincense, three ounces;
——— yellow wax, half an ounce;
——— cinnamon, in powder, six drachms;
——— essential oil of pimento,
——— essential oil of lemon, each two drachms:

Melt the frankincense and the wax together, and strain; when getting stiff, from being allowed to cool, mix in the cinnamon and oils, and make a plaster.

Compound Ladanum Plaster. (Emplastrum Ladani Compositum. L.)

Take of ladanum, three ounces;
——— frankincense, one ounce;
——— cinnamon, powdered,
——— expressed oil of mace, of each half an ounce;
——— essential oil of mint, one drachm:

To the melted frankincense add first the ladanum, softened by heat, then the oil of mace. Mix these afterwards with the cinnamon and oil of mint, and beat them together, in a warm mortar, into a plaster. Let it be kept in a close vessel.

This has been considered as a very elegant stomach plaster. It is contrived so as to be easily made occasionally, (for these kinds of compositions, on account of their volatile ingredients, are not fit for keeping;) and to be but moderately adhesive, so as not to offend the skin, and that it may, without difficulty, be frequently renewed; which these sorts of applications, in order to their producing any considerable effect, require to be.

How to make Brown Spruce Beer.

Pour eight gallons of cold water into a barrel; and then boiling eight gallons more, put that in also: to this add twelve pounds of molasses, with about half a pound of the essence of spruce; and on its getting a little cooler, half a pint of good ale yeast. The whole being well stirred, or rolled in the barrel,

must be left with the bung out for two or three days; after which the liquor may be immediately bottled, well corked up, and packed in sawdust or sand, when it will be ripe, and fit to drink, in a fortnight.

Remember that it should be drawn off into quart stone bottles, and wired.

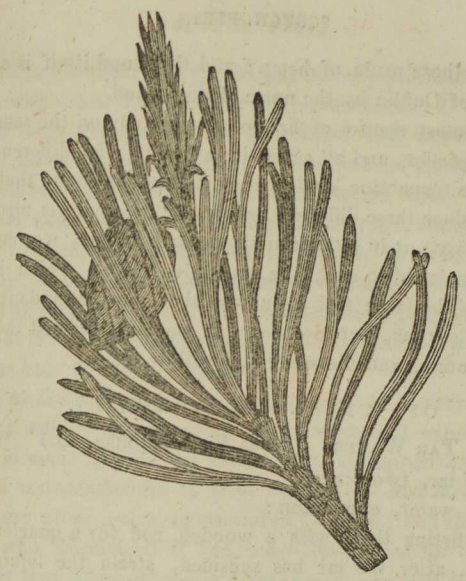
How to make White Spruce Beer.

For a cask of six gallons, mix well together a quarter of a pound of the purest essence of spruce, seven pounds of loaf sugar made into a clarified syrup, and about a gallon and a half of hot water; and, when sufficiently stirred and incorporated, put it into the cask, and fill up with cold water. Then add about a quarter of a pint of good ale yeast, shake the cask well, and let it work for three or four days; after which, bung it up. In a few days it may be bottled off after the usual manner, and in a week or ten days will be fit for use. If, on bunging it close, about a quarter of an ounce of isinglass, first dissolved in a little of the warmed liquor, or in cyder, be stirred in, by way of fining, it will acquire a superior degree of clearness. In proportion to the coldness of the weather, the quantity of yeast should be increased. Some, instead of yeast, use ale or beer grounds the first time of making, and afterwards the grounds of their former spruce beer. In warm weather, very little ferment is requisite.

How to make Spruce Wine.

For this, which is only a superior sort of white spruce beer, proceed as follows: To every gallon of water take a pound and a half of honey, and half a pound of fine starch. The starch, however, previously to its being blended with the honey, liquor, or syrup, must be reduced to a transparent jelly, by boiling it with part of the water purposely preserved. A quarter of a pound of essence of spruce may be used to five gallons of water; and the same method may be pursued in working, fining, and bottling, as directed above for the white spruce beer.

Spruce is a wholesome and pleasant drink to those who are used to it, and persons soon become habituated. It contains a vast quantity of fixed air, which is extremely bracing; and the use of this liquor is particularly to be recommended to such as are troubled with scorbutic humours, or have the gravel. It is chiefly used in the summer months.



SCOTCH FIR.

PINUS SYLVESTRIS.

Class XXI. Monœcia. *Order* IX. Monadelphia.

Essent. Gen. Char. The same as the last.

Spec. Char. *Leaves* in pairs, rigid: *Young Cones* ovate-conical, peduncled, recurved, dependent: *Anthers* with a minute crust.

DESCRIPTION.

This highly useful species, from which the red deal is obtained, inhabits more generally the northern parts of Europe, but is also found further to the south, and in Scotland, whence it is commonly called the Scotch fir. Miller describes the Scotch tree as a distinct species under the name of P. rubra. Mr. Lambert is surprised that it is not more cultivated on waste ground in England. According to his own observations it thrives least on chalky land, but even there it will grow. From a note to P. alba we learn that in some parts of Ireland the bogs are almost entirely filled with the old roots of P. sylvestris; they are dug up, and converted into ropes that stand dampness much

better than those made of hemp; and the wood itself is sold in the streets of Dublin by the name of bog-wood.

Though most species of fir possess in common the same medicinal properties, and all agree in affording the different products of the turpentine kind; yet as it has been found that some species produce these different articles of the materia medica in greater purity, or in more abundance than others, we have accordingly assigned to each the respective article which it best supplies. This tree not only furnishes most abundantly the Pix liquida, or tar, but also from it may be obtained the common turpentine, and the white and yellow resins.

OFFICINAL PREPARATIONS.

Tar Water. (Aqua Picis Liquidæ. D.)

Take of tar, two pints;
——— water, one gallon;
Mix, by stirring them with a wooden rod for a quarter of an hour, and, after the tar has subsided, strain the liquor, and keep it in well-corked phials.

Tar water should have the colour of white wine, and a sharp empyreumatic taste. It is, in fact, a solution of empyreumatic oil, effected by means of acetous acid. It was at one time much extolled as a panacea, but has of late been little employed. It acts as a stimulant, raising the pulse, and increasing the discharge by the skin and kidneys. It may be drunk to the extent of a pint or two in the course of a day.

All vegetables except mushrooms, if these be truly such, when treated by distillation without addition, give out, in the first part of the distillation, a quantity of acid, and continue to give out more during the whole of the distillation. This acid is somewhat different according as it is drawn from different vegetables: but that difference has not been ascertained; and we know them even in chemistry, and more certainly in medicine, only by the common quality of acid.

This has been but little employed as a medicine, and has hardly been remarkable but by its late use in the form of tar water. In making tar it is exhaled from vegetables whilst they are burnt, in the same manner as in the distillation above mentioned; and accordingly, in the making of tar, an acid water is found in considerable quantity in the same ditches that are prepared for receiving the tar during the burning of the wood. In

the countries where tar is prepared, particularly in North America, this acid was accidentally employed as a medicine. It was found to prove very useful; and the benevolent and worthy bishop Berkeley being informed of this, was desirous of rendering such a medicine very generally known. But as the water collected, as we have said, during the burning of the wood, could not properly or conveniently be obtained in Britain, he perceived that a quantity of the acid remained in the tar as it was imported, and conceived that it might be extracted from it by infusion in water. It is such an infusion that gives the celebrated tar water which has been so much talked of.

It was at first by many persons celebrated as a very valuable medicine; and, from my own observation and experience, I know it in many cases to be such. But, as happens in all such cases, the commendations of it by the patrons and favourers of it were very often extravagant and ill founded; and though the persons who disparaged it had some foundation for their opinions, yet they also told many falsehoods concerning it.

Although it would have been difficult, at that time, to balance between these opposite accounts, yet in the course of sixty years the matter has found its own balance. The excessive admiration of it has entirely ceased, and the most part of practitioners, from causes we could assign, have neglected the use of it; but there are still many judicious persons who believe in, and employ, its virtues. In many instances this preparation has appeared to strengthen the tone of the stomach, to excite appetite, promote digestion, and to cure all the symptoms of dyspepsia.

At the same time it manifestly promotes the excretions, particularly that of urine; and the same may be presumed to happen in that of others. From all these operations it will be obvious, that in many disorders of the system this medicine may be highly useful.

It may be, however, and has been a question, upon what, in the composition of tar water, these qualities depend: and I have no doubt in asserting that it is entirely upon the acid produced in the manner above mentioned. Mr. Reid, the author of a dissertation on this subject, has rendered this sufficiently probable, from the accounts of Glauber and Boerhaave with respect to the virtues of such an acid, and from the opinion of the bishop of Cloyne in preferring the Norway tar to that of New England, as the acid part is not taken from the former so en-

tirely as it is from the latter; and he also properly supports it by this, that any other parts of the tar water which may be found in it, unless carefully separated, are commonly very hurtful.

Upon the first introduction of tar water some physicians were of opinion, that it derived part of its virtue from some oily matter in its composition; but it would not be difficult to show that this, in many respects, is very improbable; and that, upon the contrary, the presence of these oils, as Mr. Reid has particularly pointed out, is frequently pernicious. But, to supersede all controversy on this subject, I can assert from much experience, that the tar-water, as it abounds in acid, and is more free from all oily matters, is the more effectual medicine: and I have this clear proof of it, that when, instead of extracting the acid by infusing the tar in water, I procured it by distillation from solid fir or other woods; and, by taking only the first part of the distillation, I obtained the acid as free as possible from all oily matter. I found that by employing this acid as a medicine properly diluted with water, every virtue appeared that was ever found in any tar water. In this practice I found a particular advantage, as I could, by a proper rectification and concentration, bring the acid into a small bulk; which being readily portable, is, on occasion of journeys or other circumstances, rendered very convenient. But it is very necessary to observe here, that this acid, to be rendered a very useful remedy, must be always largely diluted with water; and how much the water may favour its operation in every respect will be sufficiently obvious.

Tar Ointment. (Unguentum Picis. L. D.)

Take of tar,

——— mutton suet, prepared, of each half a pound:

Melt them together, and strain:

Edin.

Take of tar, five parts;

——— yellow wax, two parts:

These compositions cannot be considered as differing essentially from each other. As far as they have any peculiar activity, this entirely depends on the tar. From the empyreumatic oil and saline matters which it contains, it is undoubtedly of some activity. Accordingly, it has been successfully employed

against some cutaneous affections, particularly tinea capitis. For this purpose a plaster is made and put over the whole head at bed-time, and in three days after torn off with violence, so as to extract the hair from the roots. The head must be first shaved. This must be last tried; after the citron ointment (ung. hydr. nitrat.) applied at night, and washed off every morning with soap and water, and afterwards bathed in vinegar, have failed. Lunar caustic, where the disease is of small extent, is the best application.

An ointment of tar is directed in both Pharmacopœias, which has been chiefly employed in cutaneous disorders. Dr. Cullen says, "I have met with an empirical practice with respect to tar of a singular kind. A leg of mutton is laid to roast; and whilst it continues roasting, it is basted with tar instead of butter. Whilst the roasting goes on, a sharp skewer is frequently thrust into the substance of the mutton, to give occasion to the running out of the gravy; and with the mixture of the tar and gravy to be found in the dripping-pan, the body is to be anointed all over for three or four nights successively, whilst for the same time the same body linen is to be worn. This is alleged to be a remedy in several cases of lepra; and I have had one instance of its being employed in a lepra icthyosis with great success; but for reasons readily to be apprehended, I have not had opportunities of repeating the practice."

We shall now extract from the most splendid and elaborate Monograph, on the genus Pinus, (pine tree,) that has ever issued from the press in this or any other country, the other uses derived from this extensive genus, as communicated to that eminent botanist A. B. Lambert, esq. by his learned friends Dr. Maton and Mr. Davis.

Yellow Resin.

The mode of preparing this substance is minutely described by the French author whose name we have mentioned above*. He informs us, that the resinous juice is put into a large copper placed over a furnace, which last is usually constructed with a mixture of clay, sand, and straw. Great care is taken that the sides of the furnace should adjoin close to the copper, lest the smoke of the fuel should mix with that of the resinous juice; for, without such a precaution, the heat of the furnace would not fail

* Duhamel, tom. ii. p. 145.

to set fire to the latter, and there would be a great risk of losing the whole: as an additional safeguard, there is generally a vaulted canal, four or five feet long, affixed to the mouths of the furnace, and terminated by a thick mud wall five or six feet in height. When every thing has been thus prepared, a moderate fire is kept up with very dry wood, and the juice boiled five or six hours, the operators frequently stirring it about with a large wooden ladle to prevent the impurities which sink to the bottom of the copper from taking fire,—a circumstance likely to occur, it is said, without such a precaution. To ascertain whether the resinous matter is sufficiently boiled, a small quantity of it is taken out of the copper, and poured on a piece of wood; if, when it becomes cold, it may be reduced to powder by being pressed between the fingers, they know that the process is complete, and then conduct it out of the copper into a large trough similar to what is used for receiving the raw juice from the pits, and placed in like manner on supports. It is necessary to filter the decoction, which is done by pouring it hot on some long straw neatly stretched over wooden bars which form a kind of horizontal grating; the thickness of the straw filter is generally four or five inches. The impurities and dregs remain on the filter, and the juice runs through it pure into the trough. Before the juice becomes cold and fixed, it is let through a hole in the bottom of the trough into barrels, where it is suffered to harden; in this state it assumes a brown colour and a brittle texture, and is called *brai-sec*, or *rase*. To convert it into yellow resin: instead of tunning the hot juice at once into barrels, an eighth part of fresh water is mixed with it in the trough. The water is acted upon so briskly by the hot decoction, that the whole continues to boil an hour or two, and the resin, from a brown colour, becomes at length of a fine yellow. It is afterwards deposited in barrels, and suffered to harden like the *brai-sec*.

The yellow resin, as ordered by the London college, is the result of a different operation, but the properties of both these substances are so extremely alike, that they may be spoken of under the same head: we shall therefore reserve our account of them until we have described the mode of preparing the

Essential Oil.

The process for obtaininng this oil, as directed in the London

Pharmacopœia, consists in distilling five pounds of the resinous juice with four pints of water, in a copper alembic. If one pound of the oil be redistilled with four pints of water, the result is called rectified oil of turpentine (*oleum terebinthinæ rectificatum* of the London and Edinburgh colleges). The process of rectification is not unattended with danger; for, unless the luting be very close, some of the vapour is apt to escape; and if the latter should take fire, the vessels will unavoidably burst. In some dispensatories this rectified oil is denominated ethereal. It does not differ very considerably in specific gravity, smell, taste, or medical qualities, from the common essential oil.

The oleum terebinthinæ, as we have before remarked, seems to be by far the most active part of the liquid resin of the pine, and is, on that account, much more frequently employed in medicine than any other preparation. Its exhibition, however, requires considerable caution, and the admonitions of Boerhaave, Lange, &c., on this subject, cannot be too strictly attended to. The former of these authors, though its panegyrist, speaks of its violently affecting the head, producing bloody urine, and dangerously irritating the whole habit, when given injudiciously or in too large doses; and the observation of practitioners in general tends to confirm this assertion. Hence, it is proper to employ a very few drops at first, and not to augment the dose without great circumspection. The best vehicle of this powerful medicine is honey, which, with the admixture of a due proportion of powdered liquorice root, forms a good electuary. Its use in diseases of the kidneys originating from ulcerations and obstructions in those organs, is unquestionable; which is perhaps more than can be said of its alleged virtues in other complaints, and of those there are many for which medical writers of different ages have extolled the advantages of exhibiting turpentine. Cheyne recommends it as a perfect cure for sciatica; but, if I may be allowed to offer the result of my own professional experience, its effects are in few instances successful for the removal of that tormenting disease; and even those cases which I have seen cured under the use of oil of turpentine, appeared to be rather of the symptomatic than of the idiopathic kind. It is reasonable to presume that the sciatic nerve, from its origin and course, may owe some of its morbid affections to an obstructed ureter, as well as to a rheumatic diathesis. In watching the state of the urinary excretion after the exhibition

of turpentine, in more than one case of what is commonly called sciatica, I have actually witnessed considerable changes produced in it, and ascertained the pain about the hip to be mitigated according to the increased presumption of altered action in the ureter. The efficacy of oleum terebinthinæ as a styptic has been spoken of by some practitioners, but I have not myself witnessed any decided advantages produced by it; and, from having much more reason to confide in other medicines of that class, of late I have ceased to employ it; though, in uterine discharges attending cold, enfeebled habits, the more stimulative preparations of turpentine may certainly be exhibited with more safety than in the generality of diseases for which they are said to be calculated. As a diaphoretic, in rheumatic and gouty complaints, there are not wanting authorities for the employment of this medicine, but in modern practice it is rarely resorted to. Neither have the solvent effects which it has been said to produce (and which seem to have been inferred only from what is known to take place out of the body) on biliary calculi received much attention in the present day. In Germany, Norway, and some parts of the Russian empire, the essential oil of the pine is frequently used as a remedy for lesions of tendons, and for bruises in general. In England, this remedy has repute principally among farriers; but the recommendations of authors so distinguished as Heister, Platner, and Plenck, certainly entitle it to more frequent trial in chirurgical cases.

But the use of the oil of turpentine is not confined to medicine. It is much employed by the painters for rendering their colours more fluid; and the concrete resins are usually dissolved in it when they are to be converted into varnishes.

Common Resin

Is the residuum of the process for obtaining the essential oil. This process, pushed as far as the nature of the substance will admit of, changes the colour to a deep brown or black, when the resin acquires the name of

Black Resin, or Colophony.

The medicinal properties of these two kinds of resin are, of course, extremely similar. They are rarely used internally; but for external purposes (particularly as plasters) they can scarcely be dispensed with, being remarkable for their adhesiveness, especially when mixed with other materials. Being deprived of the essential oil, these resins do not produce the same stimulating effects as other preparations, and may be considered as possessing astringency without pungency.

Colophony is of considerable use in the arts. It enters into the composition of several varnishes, and is sometimes substituted for sandarach. Musicians rub the bows and strings of violins with it, in order to take off the more greasy particles, as well as to counteract humidity.

Tar.

This well-known substance, obtained from the roots and other parts of old pines by a sort of *distillatio per descensum*, differs from the native resinous juice in having acquired a disagreeable empyreumatic quality from the action of the fire, and in containing the saline and mucilaginous parts of the tree mixed with the extractive and the oily. The Scotch pine is the species from which most of the tar used in this country is procured, and perhaps yields it equally good with its congeners. It is curious to remark how little the process employed in many countries differs from that which was followed by the antient Macedonians, and which is circumstantially described by Theophrastus in the third chapter of his ninth book, where he tells us that the billets were placed erect beside one another, and that they were afterwards covered with turf to prevent the flame from bursting forth, in which case the tar was lost. The stacks were sometimes, he says, one hundred and eighty cubits in circumference, and sixty, or even one hundred, in height. These huge heaps of wood being set on fire, the tar was made to flow from them in channels cut for that purpose. As all the trees of this genus yield the same substance when treated in a similar way, it is probable that the antients did not confine themselves to one species for obtaining it any more than the moderns, and that some variety was occasioned in the product according to the different management of the fire, and in the cooling. Hence arises the confusion, and the difference of opinion among commentators respecting the terms *Cedria, Cedrœleon, Pissœleon*, &c., which, after the most industrious collation of passages from Theophrastus, Dioscorides, Galen, and Pliny, it is scarcely possible at this day to refer to the precise substances which they were intended to designate. But we shall now proceed to point out the mode

of procuring tar which Duhamel states to have been practised in the Valais, and which seems to be the best that has been adopted.

It is usual to cut down the pines intended to be burnt for the extraction of tar, in the course of the summer. The operators, knowing the quantity that will be wanted, regulate the extent of the hewing and tearing up of the trees, so as that the materials may be neither too green nor too dry at the time of preparing their ovens, for to make good tar they should not be more than half dry. As all parts of the pine (the trunk, branches, and even the bark) yield this substance, the branches are cut of a length proportionate to the size of the oven, and the thicker parts chopped into little billets similar to what are used in faggots. The ovens are shaped like an egg placed on its smaller end, and are composed of earth and stone, the floor being formed of one or more pieces of freestone, which are very nicely joined and hollowed like the inside of an egg-shell. On one side there is a hole about an inch and a half in diameter, and six inches in depth; to the external orifice of this, and five or six inches higher than the bottom of the oven, a gun-barrel of a large caliber is affixed, and there is a large iron grate placed at the bottom of the oven. The dimensions of the oven vary according to the quantity of wood intended to be burnt, the largest being about ten feet high, five or six feet in diameter in the middle, and two feet and a half at the mouth or superior part. The walls are about a foot and a half in thickness. To about two-thirds of the height these are constructed with freestone, but above that with oven-earth. When the ovens are finished, and quite dry and tight, bundles or faggots of the wood, tied up with hazel or vine rind, are set upright on the grating; the ligature is cut by means of a blade fixed at the end of a stick; and the pieces are spread about, the interstices being filled with chips. This first layer being properly made, a second faggot is let down, then a third, and so on until the oven is full, as high as the hand can reach, when chips and shavings are laid on to the thickness of three or four inches, and the mouth is covered up with flat stones piled one upon another so as to close all gaps except at the centre, where an opening is left four or five inches in diameter. All things being thus prepared, the chips at the top are set on fire; and the operators, who from experience are enabled to ascertain when the materials are sufficiently kindled, seize the proper time to shut up the mouth entirely with a flat stone; and

they stop up with earth every interstice from which smoke is seen to escape. The wood then becomes reduced to charcoal, and the resinous part of it, mixed with the sap, flows through the grate down into the cavity at the bottom of the oven. When this cavity is full up to the place where the iron tube is fixed, the tar flows into barrels placed to receive it. It is from custom alone that the persons who superintend the operation ascertain when the wood has given out all its resinous liquor; they then open the top of the oven, removing the stones, and collecting the soot which lodges in their interstices as well as on the sides of the oven, and which forms a kind of lamp-black; lastly, they take out the charcoal that has lodged on the grating, and recommence the operation by laying on wood as before. Such impurities as are heavier than the tar, with which they were mixed, remain on the stone that serves as a floor to the oven, whilst the tar itself flows on the surface through the tube, which, as we have remarked before, is five or six inches above the level of the stone. As far as we can judge, all the art of the operation consists in a proper management of the fire, for if the oven be too closely stopped, the fire is extinguished, the wood is but imperfectly charred, and very little tar is extracted; but if, on the contrary, the wood burn too briskly, a great proportion of the resinous matter is consumed. When the fire is properly regulated, there is no flame in the oven; the heat and smoke, which are reverberated on the wood, cause the resin and sap to flow from the latter together. It would seem that a more certain mode of regulating the heat would be, instead of closing the top of the oven with stones and turf, to adapt registers of different sizes to a kind of dome, which might form the upper part of it, and render the structure more neat and commodious.

Tar has been used as a medicine both externally and internally. The antients had a high opinion of its efficacy in pulmonary diseases, supposing it to promote expectoration, relieve dyspnœa, and check spitting of blood. Dioscorides particularly speaks of its utility in these cases. He also recommends it to be applied to ulcers, which, he says, it fills up and heals, whether they be situated on the surface of the body, or in the ears, throat, or other internal parts. In fact, there is no end to the praises bestowed by medical writers on the properties of tar, which, if we are to give credit to all the accounts given of it, is equal to the cure of all the maladies of the human frame. The colleges

of London and Edinburgh direct it to be made into an ointment (*unguentum picis*); the former, by means of the admixture of an equal portion of mutton suet, and the latter, of two-fifths of yellow wax. This ointment has been employed for the cure of cutaneous affections, particularly those of domestic animals. Some practitioners have applied a plaster of tar for the cure of obstinate cases of tinea capitis, and not without success; but it is a very painful, and almost a cruel remedy, for it cannot be taken off without dragging out of the skin adhering to it the roots of the hair, in the eradication of which, in fact, consists the only use of the plaster.

Pitch.

The usual mode of making pitch consists in melting coarse hard resin (or *brai-sec,* as it is called in France) with an equal quantity of tar, in large copper vessels similar to those used for boiling the raw juice. If the tar be too thin, the proportion of resin is increased; and on the other hand, if it be thick, a third part of tar is sufficient. Should the process of inspissation be carried to its utmost limit, the pitch becomes quite hard and dry, and is called in the shops *pix arida* (the πισσα ξηρα, and παλιμπισσα of the Greek writers), which is less pungent and less bitter than the common tar, and is used only in some external applications, as an adhesive substance agreeing in its medicinal virtues with the common digestives.

When melted with oils, resins, and fats, into ointments and plasters, pitch is said to be very apt to separate and precipitate. Dioscorides describes the best pitch as being shining, odorous, gummy, and of a reddish black colour, which were the qualities of the Lycian and Calabrian pitch. It was prescribed by him, and also by Celsus, as a proper ingredient in plasters for maturing abscesses and healing wounds.

Pitch was much employed by the antients for giving flavour and fragrance to their wines, which were also supposed to acquire from it useful medicinal properties, as we have before remarked, when speaking of the properties of terebinthinate substances in general. Their mode of pitching casks and other vessels is described by Columella. We are told by Pliny of a preparation of tar with vinegar, called *brutia,* which was employed for the same purposes; and this author says that it was usual to sprinkle the first ferment of new wine, or *mustum,* with powdered resin.

In boiling down tar to dryness without addition, there comes

over an acid liquor in considerable quantity, and also an ethereal oil, which seems to differ from the oil of turpentine only in being impregnated with an empyreumatic quality; it was called by the ancients *oleum picinum.* The medicinal properties of this oil are similar to those of tar.

The extensive use of pitch and tar in ship building is too well known to require particular mention. A mixture of pitch and wax, by which crevices in vessels are rendered impermeable to water, was called by the antients Ζωπισσα; and this substance, after it had been some time steeped in the sea, was used medicinally as a resolvent. Blended with a certain quantity of oil and suet, pitch becomes an useful article to the shoemakers for waxing their threads, and with whale fat it forms the grease with which wheels of carriages are smeared over. In several kinds of luting, also, this article possesses considerable utility, and is familiar to most mechanics and handicraftsmen.

Lamp-black.

Any species of pine may be used for making lamp-black, but the general practice is to convert the impurities left in the precipitation of tar and pitch to this purpose. The mode followed in Germany is thus described by Axtius, who has been copied by Duhamel, and it is illustrated in the works of both these authors by engravings. A sort of box is made, nicely closed in every part, with the exception of some holes in the top, which are covered, however, with a sort of linen cone. At a little distance from the box a furnace is constructed, with a very small mouth, and the inferior part communicating with the inside of the box by a horizontal chimney. Into this furnace are put the dregs and coarser parts left in the preparation of tar, and in proportion to the consumption of these a supply is kept up, so as to furnish a constant draught of smoke to the box. The smoke goes chiefly into the cone, where it deposits its grosser parts in the form of soot, which, when beaten off from the linen by sticks applied on the outside, is collected from the upper part of the box and put into barrels.

Lamp-black is employed almost exclusively in printing and dyeing in the present day, but it was formerly used as a substitute for the *fuligo thuris,* which is mentioned by Dioscorides and Celsus as a resolvent and digestive, and formed an ingredient in some of their plasters. The first of these authors describes a

process for obtaining lamp-black literally by means of a lamp, and attributes to it astringent properties (especially in ichorous discharges from the eyes) as well as a remarkable efficacy in promoting the growth of hair on the eye-brows. Galen also adverts to the same remedy in his account of the fuliginous substances prepared from different kinds of resin. There is a tinctura fuliginis retained in the Edinburgh Pharmacopœia; this is exhibited internally as an antihysteric, but rarely trusted to alone, being found most efficacious when combined with assafœtida or other medicines of that class, to all of which it seems to be far inferior. It is directed to be prepared from wood soot, without any particular tree being specified as preferable for this purpose to another.

Bark Bread.

We are informed by Linnæus that the Laplanders eat, during a great part of the winter, and sometimes even during the whole year, a preparation of the inner bark of the pine, which is called among these people *bark-broed*. This substance is made in the following manner, viz.: After a selection of the tallest and least ramose trees, (for the dwarf branching ones contain too great a quantity of resinous juice,) the dry and scaly external bark is carefully taken off, and the soft, white, fibrous, and succulent matter collected and dried. The time of the year chosen for this process is when the alburnum is soft and spontaneously separates from the wood by very gentle pulling, otherwise too much labour would be required. When the natives are about to convert it to use, it is slowly baked on the coals, and being thus rendered more porous and hard, is then ground into powder, which is kneaded with water into cakes and baked in an oven.

The Siberian ermine-hunters, when their ferment or yeast which they carry with them to make their *quass*, is spoiled by the cold, digest the inner bark of the pine with water over the fire during an hour, mix it with their rye-meal, bury the dough in the snow, and after twelve hours find the ferment ready prepared in the subsiding fæces.

THE MUGHO PINE.

Liquid Resin.

This resin spontaneously exudes from the extremities of the branches, and from other parts of the tree, and may also be

obtained, by expression, from the green cones. Its reputation as a medicine originated from a manuscript account written by Dr. Christian ab Hortis, of Käsmark, who extolled its efficacy in the cure of wounds, running ulcers, contusions, rheumatisms, palsies, and even of the gout. Various other complaints were said to be cured by it; and it afterwards received the commendations of Fischer, Breynius, and Bruckmann, the first of whom considered it not inferior to the balsam of Mecca. In Germany this balsam still retains high repute, but there can be no doubt that its medicinal virtues have been much exaggerated.

Essential Oil.

This essential oil is obtained by distillation from the resinous juice just described. The common oil of turpentine is often substituted for it by the itinerant druggists in Germany, but the genuine sort may be distinguished by its golden colour, agreeable odour, and acrid oiliness of taste.

As a medicine this oil is a popular remedy at Brunswick for the cure of intermittents, being taken, in the dose of a few drops, just at the commencement of the cold stage. It is also used in punctures of tendons, and by farriers as an application to foul ulcers of cattle.

THE STONE PINE.

Kernels.

These kernels have a subacid, sweet taste, similar to that of almonds, and, like the latter, may be used for emulsions as well as for dissolving resins. They possess a nutritive and demulcent quality, but, from their oily nature, soon become rancid and unfit to be eaten. Dioscorides speaks of their utility in coughs, and it is probable enough that they act as expectorants in some degree; in the present day, however, they are rarely used, except at the table.

The Siberian stone pine (*P. cembra*) yields nuts of the same kind as these, which are therefore applicable to the same purposes, but their oily contents, when exposed to the air, manifest a still stronger disposition to acquire rancidity.

The proportion of oil in the kernels of these nuts is larger, perhaps, than in those of any other tree, one pound of them yielding five ounces, whereas the same quantity of linseed produces only two ounces and a half. Rhaze speaks of the oil having a tendency to relieve obstructed kidneys; a circumstance not improbable, and well deserving of being put to the test of

experience, if it were only for the sake of substituting what would be so much more agreeable to the palate than the common turpentines.

Copy of a Letter to A. B. Lambert, Esq. from Mr. Thomas Davis, of Hommingsham, Wilts, relative to the Timber yielded by various Species of Pines.

Hommingsham, Sept. 9, 1797.

Dear Sir, I am convinced, from repeated observations, that the Scotch fir produces the deal called in London yellow deal, and in the country red deal, and being generally imported from Christiana, sometimes called Christiana deal. They frequently come hither in planks, but oftener in boards, called twelve inches wide, though seldom above ten inches and a half, cut through and through, or, as the sawyers call it, cut *fletch*. Of course the trees are not above twelve inches diameter, and yet I have counted their rings, and found their growth to be from sixty to a hundred years. They must therefore grow thick together, and upon poor or rocky land, and this is also evident by the smallness of the knots, proceeding from the want of room to push out strong boughs.

The Scotch fir raised in England is equal to the foreign in weight and durability, but is seldom so fine in the grain, and has a greater quantity of sap owing to its rapid growth, occasioned either by the superior strength of the land, or greater distance from one another, or both. But the quality is sufficiently similar to ascertain that they are the same species.

A foot square of Scotch fir, English grown, and moderately dry, will weigh fifty-one; a foot of oak not much more than sixty-one.

A tree of a hundred years old (I look upon the ultimatum of its growth in England as not more than a hundred and fifty) may measure four load, or two hundred feet, and is fairly worth fifteen pounds.

Land planted with Scotch firs eight feet and a quarter apart, viz. six hundred and forty to an acre, will pay ten per cent. compound interest, supposing very poor land at three shillings per acre, worth about four pounds in fee, and the planting to cost six pounds more, in all ten pounds per acre. In twenty-eight years ten pounds, at compound interest, will be forty pounds, and in that period the trees, at only two and sixpence each, will be worth eighty pounds.

Spruce firs, from which the deal we usually call white deal in England is produced, are perhaps the next valuable to Scotch fir; and, what is remarkable, those grown in England are superior to any imported. That kind of tree not being hurt by knots, is the better for rapid growth, and the deal the handsomer. But it does not grow well in exposed situations. It there loses all its side branches, and not growing from leadors as a Scotch fir does, gets mossy, lingers, and dies: and if put close together, it never rises to any size. Perhaps it may be two or three load in one hundred years, worth seven or eight pounds, but a hundred years seem to be the full ultimatum of its growth. It is in fact fit for nothing but a garden, where it is a pretty thing for twenty or thirty years, when it grows naked, and should be removed and replaced by others.

The silver fir, the most beautiful in external appearance of all the genus, either young or old, grows much faster than either the Scotch or spruce. At one hundred years old it is frequently above a hundred feet high, twelve or thirteen feet round, and contains at least six loads of timber, worth about fifteen pounds. The timber is more open, or, as the sawyers call it, *roacher* in its grain, than the spruce, occasioned partly by the superior luxuriance of its growth, and therefore should be used in large scantlings, where its strength and toughness render it a valuable wood, particularly for beams; only great care must be taken that the ends are dry, and accessible to air.

The Weymouth pine is a white pine, but still lighter and roacher in the grain than the preceding sorts. Its principal use in its own country (America) is for masts of ships, for which its toughness makes it proper. It will, if placed in a strong land well sheltered, get to four or five load in a hundred years, worth eight or ten pounds.

Larch is a delicate coloured wood, not unlike the cedar used for black lead pencils, either in colour or smell. It has but little sap, and is convertible to flooring board at an early age, but its knots are then rather unsightly. We have few in this kingdom of a large size, and I have observed they decay and become mossy about forty years old. They grow best in sheltered situations. However, it is a valuable and pretty looking wood, either standing or converted.

It is a mistake to suppose that fir trees should be cut in summer, because (as they say) the sap, which is the turpentine, is

afloat; they should always be cut when the sap is stagnant, viz. in winter. Fir cut in the summer will become full of mushrooms in a twelvemonth afterwards. I have tried this frequently, and paid dearly for my experience.

Places of Growth.

1. Scotch fir. Mountainous rocky situations, shelter not necessary.

2. Spruce. Gardens and lawns, where it can have room to spread its lower branches horizontally, and is not wanted to stand above forty years.

3. Silver fir. Strong lands, fit for oak; rather sheltered; but shelter not indispensable.

4. Larch. Sheltered situations on the sides of hills; land sandy, if possible, though poor. It does not like cold wet land.

I omit the balm of Gilead fir, as we have had none grown to an age sufficient for determining its rise as timber. It seems to be very like the silver fir in quality.

I hope, sir, you will find something in these remarks worthy your notice, as they are the result of the experience of above thirty years, from the seed to the great tree.

I am, Sir, your very humble servant,

THOMAS DAVIS.

Extract from the Rev. William Coxe's Travels in Poland, Russia, Sweden, and Denmark, on the Subject of Christiana Deal.

The planks and deals are of superior estimation to those sent from America, Russia, and from the different parts of the Baltic, because the trees grow on the rocks, and are therefore firmer, more compact, and less liable to rot than the others, which chiefly shoot from a sandy or loamy soil. The planks are either red or white fir, or pine. The red wood is produced from the Scotch fir, and the white wood, which is in such high estimation, from the spruce fir. This wood is the most demanded, because no country produces it in such quantities as this part of Norway. Each tree yields three pieces of timber, eleven or twelve feet in length, and is usually sawed into three planks; a tree generally requires seventy or eighty years growth before it arrives at the greatest perfection.

The environs of Christiana not yielding sufficient planks for

exportation, the greater part of the timber is hewn in the inland country, and floated down the rivers and cataracts. Saw-mills are used for the purpose of cutting the planks, but must be privileged, and can only cut a certain quantity. The proprietors are bound to declare on oath that they have not exceeded that quantity; and if they do, the privilege is taken away, and the saw-mill destroyed. There are one hundred and thirty-six privileged saw-mills at Christiana, of which one hundred belong to the family of Anker. The quantity of planks permitted to be cut amounts to 20,000,000 standard deals, twelve feet long, and one inch and a quarter thick."

"In Scotland they distinguish the wood cut in the native forests from that obtained in plantations, by calling the former Highland fir, and the latter park fir. The Highland fir is most esteemed, on account of its greater durability, being frequently found undecayed in ancient buildings, when the other sort is entirely wasted. This striking difference in the same species is probably to be attributed to the mountainous and rocky situations in which the native timber is found, and where the trees being of slower growth, the wood is consequently of a harder texture; the latter may be readily distinguished from that of the park fir by its much deeper yellow colour."

COMMON PALMA CHRISTI.

RICINUS COMMUNIS.

Class XXI. Monœcia. *Order* IX. Monadelphia.

Essent. Gen. Char. Male flower—*Calyx* five-parted: *Corolla* none: *Stamina* numerous. Female flower—*Calyx* three-parted: *Corolla* none: *Styles* three, bifid: *Capsule* three-celled: *Seed* one.

Spec. Char. *Leaves* peltate, subpalmate, serrate.

DESCRIPTION.

This plant grows eight or ten feet in height. The leaves are large, and deeply divided into lobes, or pointed segments, on long footstalks, contrary to what is usual, unless the plant is nodding; the female flowers are on the upper part of the spike, and produce a three-celled nut, covered with tough spines containing three seeds.

HISTORY.

This plant grows in both Indies, Africa, and the south of Europe. It is of speedy growth, and in one year arrives at its

full height, which seldom exceeds twenty feet. The capsules are prickly and triangular, and contain, under a thin, dry, gray, and black-marbled husk, a white oily kernel. The skin is extremely acrid; and one or two of the seeds swallowed entire operate as a drastic purgative or emetic.

The kernels yield almost a fourth part of their weight of a bland fixed oil, commonly called castor oil. It is obtained from them either by expression, or by decoction with water. The former method is practised in Europe, the latter in Jamaica. To increase the product, it is common to parch the seeds over the fire before the oil is extracted from them; but the oil thus obtained is inferior to that prepared by cold expression or simple decoction, and is apt to become rancid. Genuine castor oil is thick and viscid, of a whitish colour, insipid or sweetish to the taste, and without smell.

MEDICAL USE.

As a medicine, it is a gentle and useful purgative: it in general produces its effects without griping, and may be given with safety where acrid purgatives are improper, as in colic, calculus, after childbirth, &c.: some likewise use it as a purgative in worm cases. Half an ounce or an ounce commonly answers with an adult, and a drachm or two with an infant.

The aversion to swallowing oil is generally considerable. Different modes of overcoming this have been proposed. Some prefer taking it swimming on a glass of water, or peppermint water, or in coffee stirred round, others in the form of an emulsion, with mucilage, or with the addition of a little wine.

Dr. Cullen observes that "this oil, when the stomach can be reconciled to it, is one of the most agreeable purgatives we can employ. It has this particular advantage, that it operates sooner after its exhibition than any other purgative I know of, as it commonly operates in two or three hours. It seldom gives any griping, and its operation is generally moderate, one, two, or three stools only. It is particularly suited to cases of costiveness, and even to cases of spasmodic colic. In the West Indies it is found to be one of the most certain remedies in the dry belly-ach, or colica pictonum. I have never found it heating or irritating to the rectum, and therefore have found it sufficiently well suited to hæmorrhoidal persons. The only inconvenience attending the use of this medicine is, that as an oil it is nauseous

to some persons; and that, when the dose is large, it occasions sickness at the stomach for some time after it is taken. To obviate these inconveniences, several means have been tried; but I shall not detail these here, as I can assert, that the most effectual means is the addition of a little ardent spirit. For this in the West Indies they employ rum; but that I might not withdraw any part of the purgative, I employ the tinctura sennæ composita. This, added in the proportion of one to three parts of the oil, and very intimately mixed by their being shaken together in a phial, both makes the oil less nauseous to the taste, and makes it sit more easy on the stomach. The common dose of this oil is a table-spoonful, or half an ounce; but many persons require a double quantity. But it is particularly to be observed of this medicine, that if it be frequently repeated, the dose of it may be more and more diminished. And I know instances of persons who, formerly of a costive habit, at first required half an ounce or more for a dose; but after being frequently repeated, they now find that two drachms are enough, at least to keep the belly regular."

PRESCRIPTIONS.

℞. 1. Take of castor oil - drachms 4,
——— the yolk of one egg;
Accurately mix them together; add
Cinnamon water - - ounce 1½:
Make into a draught, to be taken immediately.
This is a useful and pleasant purge.

℞. 2. Take of castor oil - ounces 2,
——— one egg;
Mix them well, and then add
Gruel - - - - - ounces 8:
For a glyster, which will operate very kindly, and is supposed to be efficacious in worms.

CASCARILLA,

OR

WILLOW-LEAVED CROTON.

CROTON CASCARILLA.

Class XXI. Monœcia. *Order* IX. Monadelphia.

Essent. Gen. Char. Male flower—*Calyx* cylindrical, five-toothed: *Corolla* five-petalled. Female flower—*Calyx* many-leaved: *Corolla* none: *Styles* three, bifid: *Capsule* three-celled: *Seed* one.

Spec. Char. *Leaves* lanceolate, acute, entire, petioled, beneath tomentose: *Stem* arboreous.

DESCRIPTION.

A moderate sized shrub. Bark white. Leaves long, narrow, entire, pointed, on very short footstalks, above a bright green, beneath downy, and of a silvery whiteness. The flowers are small and inconspicuous, in terminal spikes.

HISTORY.

The bark is imported into Europe from the Bahama islands, and particularly from one of them of the name of Eleutheria, from which its trivial name is derived. But Dr. Wright also found the tree on the sea shore in Jamaica, where it is common, and rises to about twenty feet in height. It is the Clutia eleuteria of Linnæus; the bark of whose Croton cascarilla has none of the sensible qualities of the cascarilla of the shops.

This bark is in general imported either in curled pieces or rolled up into short quills, about an inch in width, somewhat resembling in appearance the Peruvian bark. Its fracture is smooth, and close, of a dark brown colour. It is covered with a rough, whitish epidermis; and in the inside it is of a brownish cast.

It has a light agreeable smell, and a moderately bitter taste, with some aromatic warmth. It burns readily, and yields, when burning, a very fragrant smell, resembling that of musk; a property which distinguishes the cascarilla from all other barks.

Its active constituents are aromatic volatile oil and bitter extractive. Its virtues are partially extracted by water, and totally by alcohol; but it is most effectual when given in substance.

MEDICAL USE.

It produces a sense of heat, and excites the action of the stomach; and it is therefore a good and pleasant stomachic, and may be employed with advantage in flatulent colics, internal hæmorrhagies, dysenteries, diarrhœas, and similar disorders.

As the essential oil is dissipated in making the extract, this only acts as a simple bitter.

Cascarilla, or eleutheria bark, is truly a hot, acrid, aromatic bitter, resembling in appearance the Peruvian bark, but is more bitter and pungent, though not so rough and astringent. It has been used as a febrifuge for stopping agues, in the same way as the Peruvian bark, and is much used in such cases among the Germans. It has been given A. D. 1794 and 1795, by doctor Apinus, of Altorf, with success, in remitting and petechial fevers: it generally sweated the patients plentifully, and kept the belly open, giving those whom it did not sweat three or four stools in the day. And in the year 1719 it was found to be of service in an epidemic dysentery which raged at Paris, and had had not yielded to ipecacuanha; and afterwards was found to produce like good effects when administered by Degenerus to

people labouring under the dysentery in Holland. It is not at present much used in this country, though Dr. Lewis, in his New Dispensatory, says that it deserves to be more regarded than it is at present. Dose from ten grains to half a drachm, or more.

OFFICINAL PREPARATIONS.

Tincture of Cascarilla. (Tinctura Cascarillæ. L. D.)

Take of the bark of cascarilla, powdered, four ounces;
——— proof spirit, two pints:
Digest with a gentle heat for seven days, and strain.

This is a fine stimulating medicine, and excellent in the gout, or after that disease to give to the stomach tone and system. The dose is two drachms four times a day, in some cinnamon or common water.

Resinous Extract of Cascarilla. (Extractum Cascarillæ Resinosum. D.)

Take of cascarilla, in coarse powder, one pound;
——— rectified spirit of wine, four pints:
Digest for four days, then pour off the tincture, and strain; boil the residuum, in ten pints of water, to two: evaporate the filtered decoction, and distil the tincture, in a retort, till both begin to grow thick; then mix them, and evaporate them to a state fit for making pills. Lastly, they are to be intimately mixed. The dose of this from ten grains to half a drachm.

PRESCRIPTIONS.

℞. 1. Take of the tincture of cascarilla drachms 2,
——— vitriolic ether - - - drops 20,
——— cinnamon water,
——— simple peppermint water,
of each, equal parts - - - ounce 1:
Make into a draught, to be taken three times a day. An excellent stomachic.

℞. 2. Take of cascarilla, reduced to a coarse powder,
——— camomile flowers,
——— aniseed, of each, equal parts - ounces 2:
Put some hot cinders in a shovel, sprinkle this gradually on it, and fumigate the chambers of the sick. It takes off smell, if it does not keep off infection.

INDIAN RUBBER.

SIPHONIA ELASTICA.

Class XXI. Monœcia. *Order* IX. Monadelphia.

ESSENT. GEN. CHAR. Male flower—*Calyx* globoso-campanulate, semi-quinquefid: *Corolla* none: *Anthers* five, coalescing. Female flower—*Calyx* five-cleft, patent, solitary, terminating in a raceme: *Corolla* none: *Style* none: *Stigmata* three: *Capsule* three-celled, woody, very hard.

SPEC. CHAR. *Leaves* ternate, elliptic, entire, petioled.

DESCRIPTION.

A LARGE tree, growing fifty or sixty feet. Leaves on the underside whitish. Flowers very inconspicuous, terminal.

HISTORY.

This tree is native of South America, grows abundant in the province of Quito, and along the borders of the river Amazons, in the kingdom of Mexico. Our Indian rubber, as it is called, is from the juice of this tree.

MEDICAL USE.

It is dissolved in ether, and then made into various surgical instruments by evaporation, and coating gold wire becomes an excellent metallic elastic bougie. The Indians make boots of it, and burn it for candles and flambeaux, which produce a clear dazzling light without smoke.

WILD OR SQUIRTING CUCUMBER.

MOMORDICA ELATERIUM.

Class XXI. Monœcia. *Order* X. Syngenesia.

ESSENT. GEN. CHAR. Male flower—*Calyx* five-cleft: *Corolla* five-parted: *Filaments* three: Female flower—*Calyx* five-cleft: *Corolla* five-parted: *Styles* trifid: *Fruit* a pome bursting elastically.

SPEC. CHAR. *Pome* hispid: *Cirrhi* none.

DESCRIPTION.

THIS trails like the common cucumber. Leaves heart-shaped, slightly sinuated, veined, rough, reticulate, upon long foot-stalks. Flower from the axillæ of the leaves, of a bright yellow, reticulated with green veins. Germen beneath the calyx and corolla, conspicuous, terminated in a pome divided into three cells, containing many flat seeds, which when ripe upon being touched spirts the seeds covered with juice into your face, if you are not on your guard.

HISTORY.

Native of the south of Europe, and flowers in June and July.

MEDICAL VIRTUES.

Since the time of Gerard the wild cucumber has been regularly cultivated in this country for medical use: all the parts of the

plant are bitter, and strongly purgative*; but the dried juice, or feculæ of the fruit, known in the shops by the name of elaterium, is the only part now medicinally employed, and has been distinguished into white and black elaterium: the first is prepared from the juice, which issues spontaneously, and the latter from that which is obtained by expression †.

Mr. Dick, surgeon to the artillery, in the tenth volume of the Edinburgh Medical Commentaries, tells us, that being in the Carnatic, with 300 men, who had been sent from Bengal, many of them were attacked with a dropsical disorder, for which he ordered them some of the common purging medicines; but these producing no good effects, he had recourse to the elaterium mixed with extract of gentian, which he made up into pills, containing a quarter of a grain of elaterium each; he began with ordering one of these to be taken every hour till they operated; but finding that they often produced more violent effects than he intended, he ordered them to be taken only once in two hours till they had the desired effect. These pills sometimes occasioned a vomiting, always a nausea, and often a griping; and discharged such quantities of water both by stool and by urine, and gave such relief to the patients, that he could hardly prevail with them to take any other medicine on the intermediate days. Finding success from this practice, he repeated the pills every third or fourth day, till all the swellings were gone, and then had recourse to corroborants to complete the cure.

OFFICINAL PREPARATION.

Inspissated Juice of the Wild Cucumber. Elaterium. (Succus Spissatus Momordicæ Elaterii, vulgo Elaterium. E. Elaterium. L.)

Slice ripe wild cucumbers, express the juice very gently, and strain it through a very fine hair sieve (into a glass vessel, L.); then boil it a little, and set it by for some hours, until the thicker part has subsided. The thinner supernatant fluid is to be poured off, and separated by filtering; and the thicker part,

* Radicum vis cathartica major est quam foliorum, minor vero quam fructuum.—Geoff.

† This drug was formerly prepared in several different ways, a circumstance necessary to be attended to in the history of its medicinal effects.

which remains after filtration, is to be covered with a linen cloth, and dried with a gentle heat.

Elaterium. (Elaterium. D.)

Slice ripe wild cucumbers, express the juice very gently, and strain it through a very fine hair sieve into a glass vessel. Then set it aside for some hours, until the thicker part subside. Reject the supernatant liquor, and dry the feculum, laid upon and covered with a linen cloth.

This is not properly an inspissated juice, but a deposition from the expressed juice. Such depositions have long been called fecula, and the denomination has been confirmed in modern times. Its application, however, appears to us to be too extended; for fecula is applied both to mild and nutritious substances, such as starch, and to drastic substances, such as that of which we are now treating. Besides, if it possessed exactly the same chemical properties as starch, it would be converted into a gelatinous mass by the boiling directed by the Edinburgh college, and would not separate; whereas the boiling is intended to promote the separation.

Common filtration through paper does not succeed here: the grosser parts of the juice falling to the bottom form a viscid cake upon the paper, which the liquid cannot pass through. The separation is to be effected by draining the fluid from the top, by placing one end of some moistened strips of woollen cloth, skeins of cotton, or the like, in the juice, and laying the other end over the edge of the vessel, so as to hang down lower than the surface of the liquor.

MEDICAL USE.

Elaterium is a very violent hydragogue cathartic. In general, previous to its operation, it excites considerable sickness at the stomach, and frequently produces severe vomiting. It is therefore seldom employed till other remedies have been tried in vain. But in some instances of ascites it will produce a complete evacuation of water, where other cathartics have had no effect. Two or three grains are, in general, a sufficient dose, although perhaps the best mode of exhibiting it is by giving it only to the extent of half a grain at a time, and repeating that dose every hour till it begins to operate.

BITTER CUCUMBER,
OR
COLOQUINTIDA.
CUCUMIS COLOCYNTHIS.

Class XXI. Monœcia. *Order* X. Syngenesia.

ESSENT. GEN. CHAR. Male flower—*Calyx* five-toothed: *Corolla* five-parted: *Filaments* three: Female flower—*Calyx* five-toothed: *Corolla* five-parted: *Pistil* trifid: *Pome* containing sharp seeds.

SPEC. CHAR. *Leaves* multifid: *Pome* globular, smooth.

DESCRIPTION.

STEM trails, covered with hairs. Leaves variously sinuated, hairy, upper surface a bright green, beneath rough and hairy. Flowers single, from the alæ of the leaves, yellow, bell-shaped, cut into five segments, tendrilled.

HISTORY.

Coloquintida, or bitter apple, is the product of a plant of the gourd kind, growing in America, Egypt, Persia, Turkey, and most of these eastern countries. The pulp, which is the part

made use of, is a nauseous, bitter, acrid purge, consisting principally of earthy, gummous, and resinous parts; an ounce containing about half an ounce of gummous or mucilaginous, and four scruples of resinous principles, according to Cartheuser's experiments; who says that both the gummous and resinous parts are purgative, but the resinous the strongest: though Geoffroy alleges, that the resinous parts occasion more violent gripes, but that a gummous extract is more purgative.

Mr. Boulduc got with water, from eight ounces of pulp, three ounces of a gummous extract; and from a like quantity of pulp, only half an ounce of resin with spirit.

Colocynth irritates violently; if given in large doses by itself, it often produces bloody stools, and is said sometimes to have inflamed and ulcerated the intestines; and to have even occasioned convulsions and death; insomuch that many have looked upon it as a dangerous medicine.

The dose is from four to ten grains; but it is seldom or never exhibited by itself, being commonly mixed with other purging medicines, as in the old pilulæ ex colocynthide simpliciores, which are very strong purgatives made of colocynth and scammony, each two ounces; oil of cloves, two drachms; and syrup of buckthorn, q. s.; given from fifteen grains to half a drachm: as were likewise the pilulæ ex colocynthide cum aloe, made with two ounces of socotrine aloes, and as much scammony; an ounce of the pith of the colocynth; two drachms of oil of cloves; and as much syrup of buckthorn as made the whole up into a mass, which are milder, and given from a scruple to half a drachm.

The colocynth was likewise an ingredient in the extractum catharticum, which was made by mixing six drachms of colocynth, and half an ounce of lesser cardamoms husked, after they had been bruised, with one pint of proof spirit, and then digesting them with a gentle heat for four days; and afterwards by straining and pressing out the tincture, and dissolving in it an ounce and a half of socotrine aloes, and half an ounce of scammony, which had been previously reduced to a fine powder; and drawing off the spirit, and inspissating the remaining mass to a pilular consistence. The common dose of this extract is from five grains to twenty. It is a very brisk and a very safe cathartic; and joined to mercurius dulcis will often procure a passage through the bowels after other medicines have been tried

without effect. I have frequently ordered a scruple of this extract, and as much mercurius dulcis sublimatus, to be made up into eight pills with syrup, and directed patients who seemed to be in the most imminent danger for want of stools, to take four of these pills immediately, and afterwards two of these every hour till they operated; and they generally answered the purpose. Some desperate cases required a larger dose; and I have seen one or two instances where two scruples of these pills were taken for a dose, with good effect. However, it ought to be observed with regard to these pills, as well as to all others where mercury is an ingredient, that if they do not soon operate by stool they ought to be laid aside, and other purging medicines tried in their place; otherwise they may be in danger of taking to the mouth, and raising a salivation.

The colocynth is the purgative ingredient in most of the purging beers and ales used by the common people.

As it is the resinous parts of this medicine that are the most acrid, a watery tincture drawn without heat, or an extract made from such a tincture, has been thought preferable to the colocynth in substance by some; and when it is given in substance, the triturating it with sugar or testaceous substances has been found to render it much milder.

OFFICINAL PREPARATIONS.

Compound Extract of Colocynth. (Extractum Colocynthidis Compositum. D.)

Take of pith of colocynth, cut small, six drachms;
——— hepatic aloes, an ounce and a half;
——— scammony, half an ounce;
——— lesser cardamom seeds, husked and bruised, one drachm;
——— Castile soap, softened with warm water, so as to have a gelatinous consistence, three drachms;
——— warm water, one pint:
Digest the colocynth in the water, in a covered vessel, with a moderate heat, for four days. To the liquor, expressed and filtered, add the aloes and scammony, separately, reduced to powder: then evaporate the mixture to a proper thickness for making pills, having added, towards the end of the evaporation, the soap jelly and powdered seeds; and mix all the ingredients thoroughly together.

Compound Pills of Aloes. (Pilulæ Aloes Compositæ. L.)

Take of socotrine aloes, powdered, one ounce;
——— extract of gentian, half an ounce;
——— oil of caraway seeds, two scruples;
——— syrup of ginger, as much as is sufficient:
Beat them together.

Although soap can scarcely be thought to facilitate the solution of the aloes in the stomach, as was supposed by Boerhaave and others, it is, probably, the most convenient substance that can be added to give it the proper consistence for making pills. When extract of gentian is triturated with aloes, they re-act upon each other, and become too soft to form pills, so that the addition of any syrup to the mass, as directed by the London college, is perfectly unnecessary; unless at the same time some powder be added to give it consistency.

These pills are much used as warm and stomachic laxatives: they are very well suited for the costiveness so often attendant on people of sedentary lives, and, upon the whole, are one of the most useful articles in the materia medica.

HOP.

HUMULUS LUPULUS.

Class XXI. Monœcia. *Order* V. Pentandria.

ESSENT. GEN. CHAR. Male flower—*Calyx* five-leaved: *Corolla* none: *Anthers* with two pores at top. Female flower—*Calyx* an oblique entire scale of the ament: *Corolla* none: *Styles* two: *Seed* one, coated.

SPEC. CHAR. None, as there is but one species.

DESCRIPTION.

This plant rises eighteen feet. Stem climbing, goes against the sun. Leaves opposite, petioled, serrated, rough, heart-shaped, the upper cones three-lobed. Flowers in loose racemes. Scales of the strobilus ovate, a yellow green.

HISTORY.

There are several sorts, though the botanists allow but of one species of hops. The most esteemed are the long white, the oval, and the long square garlic hop. These differ from each other in the colour and shape of their bells, or hops, in their degree of bearing, and in their time of ripening. The long white is most valued, because it is a great bearer, and produces the most beautiful hops; for the beauty of hops consists in their being of a

pale bright green colour. The oval hop is beautiful, but does not bring so large a crop. There is a sort of white hop, called the early or rath hop, which ripens a week or ten days before the common, and is therefore of advantage to those who would be first at market: but it is more tender, and does not bear so plentifully. The long square garlic hop is the greatest bearer, more hardy, and somewhat later ripe than the former; but, by reason of its redness towards the stalk, it is not so much esteemed as the other sorts.

Towards the latter end of July hops begin to blossom, about the beginning of August they bell, and, in forward years, they are sometimes ripe at the end of August, or beginning of September. When they begin to change colour, or are easily pulled to pieces, when they emit a fragrant smell, and when their seeds begin to look brown and grow hard, they may be considered as ripe: then pick them with all expedition; for a storm of wind will do them great mischief at this time; and hops picked green and bright, without bruising or discolouring, will sell for a third more than those that are otherwise.

When the poles are drawn up in order to be picked, the vines around them should be cut asunder at the height of about three or four feet from the ground; for the cutting of them lower, especially while the hops are green, would occasion so great a flowing of the sap, as would weaken and hurt the root.

If the poles stick so fast in the ground as not to be taken up without difficulty, and hazard of breaking them, they should be raised by a piece of wood in the nature of a lever, having a forked piece of iron, with teeth on the inside, fastened within two feet of the end.

The most convenient way of picking them is, into a long square frame of wood, called a bin. This frame is made of two poles, or pieces of wood, each nine or ten feet long, and three or four inches thick, joined together at about a foot and a half from each end, by two other pieces three feet long, and supported by four legs three feet and a half high, so that there remains in the middle of it a space of six feet long, three wide, and three and a half deep. In this space is fixed a coarse linen cloth, or hop bag, cut open on one side, and hung hollow, either by hitching it on tenter-hooks along the inside of the frame, or by stitching it on the outside with wooden skewers, to receive the hops as they are picked. Three men or women, or four

boys or girls, may stand at each side of the frame, and pick two poles at a time.

When some poles are raised, bring them with the hops and vines on them, and lay them lengthwise upon the frame; or erect a forked prop at each end of the frame, and rest the poles thereon when picking. There is no occasion to strip the vines or haulm from off the poles before they are picked. The workman who raises the poles generally carries them to the frames; and these, being light, may be easily removed from one part of the hop ground to another.

The ripest hops should be picked first: but if the hops appear to be equally ripe in all parts of the plantation, it is best to begin to pick them on the east or north side of the ground, the more effectually to guard against the south-west wind's breaking into the garden.

Having chosen a spot of ground which contains eleven hills, place the bin upon the hill which is in the centre, and, after these are picked, remove it into another spot of the same extent; and so proceed till the whole is finished.

The hops should be picked as free as possible from leaves and stalks; for these would be of greater prejudice to the sale than any seeming advantage which might be expected from their weight. The bin should be emptied two or three times a day into a large cloth of clean linen, in which the hops should be immediately stitched up with skewers, and carried directly to the oast, or kiln, to be dried: for if they remain long in the bin, or cloth, they will sweat, and be discoloured.

If any brown hops are met with in the picking, care should be taken to separate them from the rest, by putting them into a basket by themselves.

If the weather be very hot, or rainy, cut no more hops than may be picked in an hour: but, if it be possible, gather them in fair weather only, and when they are dry; for this precaution will save some expense of coals, and contribute to the better preservation of their colour when they are dried. No hops should be gathered when the dew is on them; for that would make them become mouldy.

We can trace, nearly, the introduction of almost every useful plant into Great Britain. To proceed: Of the hop (*Humulus lupulus*). The young shoots of this plant are eaten in the spring as asparagus. It is used by the dyer to dye wool yellow: from

the stalks a strong cloth may be made; but its chief use is to bitter, by its strobile, beer, so that it may keep, and taste more pleasant. This plant was first cultivated here in 1524, the 15th year of Henry VIII. It prospered exceedingly; and we find a book soon after, in black letter, recommending its culture. The author, Reynolde Scott, complains, in his "Perfite Platforme of a Hoppe Garden," that "the Flemmings envy our practice herein, who altogither tende their own profite, seeking to impounde us in ignorance, to cramme us with the wares and fruits of their countrie, and doe anye thing that myght put impediment to our cultivating the hoppe, discommending our soyle and climate, sending us to Flaunders for that which we can finde better at home."

Not long after the introduction of this useful plant, the city of London petitioned parliament against two "anusancies," and these were "Newcastle coals and hops; the latter, as it would spoil the taste of drink, and endanger the people's health." And in queen Elizabeth's time there is an edict against the use of that "pernicious weed" the hop, whose culture now employs thousands, and brings a great revenue to the state.

MEDICAL VIRTUES.

We are much indebted to Mr. Freake, an apothecary, for his "Observations on the Humulus Lupulus of Linnæus." He says: "As the virtues of medicines can only be ascertained by experiment and careful observation, it is much to be lamented that a very great number of articles of our materia medica have been either wholly overlooked or but superficially examined. Amongst these may be reckoned the humulus lupulus of Linnæus, which of late years has been scarcely at all used as a medicine, though I am persuaded that it is capable, under proper management, of affording considerable relief in many important diseases. I beg leave to lay before the public an account of several cases, in which I have employed it with great success; and to communicate the opinions of some eminent physicians respecting its use: previously to which, however, it may not be improper briefly to state the reasons which induced me to make trial of it.

In the beginning of the year 1801 I was applied to by a gentleman going abroad, to make for him some bitter tincture, which he might take with him, and occasionally use when properly diluted, for the purpose of strengthening his stomach,

which had rejected the bark in every form, as well as most of the other bitters which had been prescribed for him. After having made numerous experiments with various herbs and flowers of the bitter class, as well as with the roots, barks, and other parts of vegetable substances, none of them appeared to me so pleasant to the taste, and so agreeable to the stomach, as the lupulus. On mentioning this, he requested me to prepare for him a tincture from that vegetable, which I accordingly did; but before the process was finished, the ship on which he was to embark unexpectedly sailed, and he was obliged to depart without the medicine. This circumstance I consider fortunate; for otherwise, in all probability, I should not have made trial of the lupulus; but having the preparation complete, after due examination of what different authors had written respecting it, I determined to employ it whenever a fair opportunity should occur, being convinced from what I had read, as well as from its known use in the preparation of malt liquors, that a careful administration of it could not injure my patients, even though it should not answer my expectations of affording them relief."

He then relates a number of very interesting cases, where the hop was employed in extract or tincture; to which are added some communications from physicians of the highest eminence.

From Dr. Latham, Fellow of the Royal College of Physicians, and Physician Extraordinary to the Prince of Wales.

I have the authority of Dr. Latham to say, that he has prescribed the humulus lupulus with good effect in stomach and bowel complaints; he has directed it as a substitute for laudanum to allay the distressing symptoms of phthisis; and has observed it to check the violent sickness frequently occasioned by extreme debility.

From Dr. John Mayo, Fellow of the Royal College of Physicians, and Physician to the Princess of Wales.

Dr. Mayo authorizes me to state, that he considers it a peculiar bitter, differing essentially from others, and possessing very valuable properties. His experience of it, when given to infants, allows him to speak to its safety, and to make mention of it as a medicine of considerable utility in some convulsive affections arising from teething irritation.

From Dr. Stone, Fellow of the Royal College of Physicians.

Princes-street, Hanover-square,
December 26, 1806.

Dear Sir,—In reply to your inquiries respecting the medical effects of the humulus lupulus, I beg leave in the first place to thank you for having called my attention to its pharmaceutic preparation and exhibition; in most dyspeptic cases light bitter tonics are eminently useful, whilst the stronger bitter infusions and decoctions are found to overpower the stomach, to induce heat and thirst, and to aggravate the symptoms which they were intended to relieve. In such cases I have prescribed all your preparations of the hop with considerable advantage: it may be worth while to state, that when I have employed tinctura lupuli simplex, I have added to it sp. ammoniæ comp. in the proportion of about one-fifth of the whole; and I have been induced to continue this form of prescription from my having succeeded with it beyond my expectation. The importance of the hop in a medical point of view, is at least equal to that of gentian, colombo, or camomile; and it would be a valuable simple in the materia medica if it were only for the benefit derived from the repeated variation of the individual bitter medicine to be prescribed in cases of permanent debility of the stomach: it has the advantage of being grateful to the palate, as is testified by the censure which daily passes round the dinner-table against our brewers of small beer; and your preparations of it produce beneficial effects which are scarcely credible to those who have used it only in their beverage, in combination with the fermented infusion of malt, which is seldom proper in those cases which are most relieved by this medicine: it appears to have the advantage of tending to keep the bowels moderately open, which in the cases I have mentioned is a very desirable effect, as preventing the necessity of the frequent repetition of purgative medicines. As to its effects on gout, I can only say that I am anxious to give it a further trial, and that I certainly have known it to be serviceable in this disease: but during six or seven months in which I have prescribed it, I have not been able to prevail with a gouty patient to persevere satisfactorily in its use.

I am, dear Sir, sincerely yours,
Arthur Daniel Stone.

From Dr. Maton, Fellow of the Royal College of Physicians, and Physician Extraordinary to her Majesty.

Spring Gardens, Nov. 26, 1806.

Dear Sir,—Though I had met with many accounts of medicinal properties in the humulus, given by various writers on the materia medica, I had never been induced to make trial of it until I perused your late publication, which, from the precision of the experiments and cases contained in it, certainly merits the general attention of practitioners.

Of the various forms of disease that come most frequently under our care, there is no one perhaps upon which we are, commonly, less able to produce any immediate impression by medicine than what may be called articular rheumatism, or that species of painful affection of the joints which, under many circumstances, exhibits a very near alliance to gout. Most sufferers under the last-mentioned disease are now so much accustomed either to consider their cases as hopeless, or to dread resorting to remedies, that I could not calculate on having many early opportunities of putting the alleged virtues of the humulus to the test in that complaint. I therefore resolved to begin the employment of it in the former; and have had the satisfaction to find that it has succeeded, at least better than any other medicine of which I have had experience, and certainly to a degree that has surprised me.

The only preparations of the humulus which I have hitherto prescribed are the extract and the tincture, and (as you already know) they were procured from your house. The former I have given to the extent of ten grains thrice a day, beginning with the dose of three, and afterwards gradually increasing it; but it has never, within my observation, produced such decided effects as the tincture, in which form it seems to me that the sedative properties of the humulus are more completely secured than in the other; and it is, besides, a more elegant and grateful preparation. In a dose (given to an adult) smaller than ʒi, the activity of the tinctura humuli is not considerable, but in that of ʒiss, or ʒij, it rarely fails to produce immediate relief from pain, to allay irritability, gently augment the secretions, and produce sleep. In one or two instances I have prescribed still larger doses, which, however, were followed rather by inconvenience than comfort to the patient, for they occasioned headach and heat of skin, effects to be expected, indeed, from the quantity of spirit. My most common mode of exhibiting it, therefore, has been in the dose of ʒi every four hours, or ʒiss thrice a day; and I have often advantageously combined it with a saline draught. In removing arthritic pains, the humulus does not appear to me to operate by inducing diaphoresis merely, or indeed any other external effect, for I have, in several instances, seen it conquer the complaint without obviously unloading any part of the system. Notwithstanding it has been said to relax the bowels, such an effect has not come within my experience: on the contrary, I have often been obliged to order some gentle purgative or other in the midst of a course of it. There is some nicety necessary in determining how far the pulse is influenced by the use of the humulus; but, for my own part, I am led to believe that it is reduced in frequency, and increased in firmness, by this medicine in a very direct manner. In one patient I found the number of beats lessened from 96 to 60 within 24 hours, by only ʒi of the tincture, and 4 grains of the extract, (given once in six hours,) and a fulness in it was produced similar to that which is occasioned by a large dose of opium or hemlock. When a strongly marked inflammatory diathesis exists, I believe the humulus to be hurtful, and under many other circumstances should it be resorted to as a popular and domestic remedy, or without the superintendance of a judicious practitioner, I have no doubt that its effects may be mischievous, as happens with many other powerful medicines. That sort of pulse which often attends general irritability, and which, though it may extend to 90 or 100 beats in a minute, is not accompanied by great heat or thirst, seems to be the state of the circulation in which the humulus is most likely to be beneficial; but when there is reason to suppose any local congestion to be present, I suspect that the exhibition of such a medicine will be found hazardous.

When I first made trial of the humulus, I fell into the error of discontinuing it in some cases soon after the complaint was removed, and had the mortification to find that the symptoms shortly returned with as much violence as ever. Hence I feared that it was a mere palliative; but, after having taken the precaution to continue it several days after my patient pronounced himself cured, I observed his security to be complete. I would lay great stress, therefore, on the propriety of persevering with

the course of the medicine long after the occasion for it may seem to have ceased. And I must here add, that the practitioner is not always to be discouraged if the humulus should not produce its full effect at first; for I have often found that, though 3i of the tincture, or 4 grains of the extract, may have proved apparently inefficient, a sudden increase of the dose at the end of a few days has put a total stop to the disease.

I have thus reported to you, more in detail perhaps than you required, my observations on the medicinal effects of the humulus. My experience of them, you will have perceived, has hitherto been confined to one kind of disease, and to only two forms of the medicine; but I have sufficiently convinced myself of its powers to be induced to employ it in other cases, especially in such as you have recommended it to be used in your treatise.—I am, dear Sir,

Your very obedient servant,

W. G. MATON.

Concluding Observation.

I have now, adds Mr. Freake, for nearly six years past, administered the lupulus in a variety of diseases, and I can with confidence assert that it is a very valuable medicine. I have not preserved an account of all the trials I have made of it, but I think I should be correct in asserting, that it has afforded a cure in more than one-half of the cases in which I have given it.

"The humulus lupulus," says Chambers, "appears to have been brought into this country from the Netherlands in the year 1524. It is first mentioned in the English statute book 1552, viz. in the fifth and sixth of Edward the Sixth, chap. 5. And by an act of parliament in the first year of king James the First, anno 1603, chap. 18, it appears that hops were then produced in abundance in England." He also says, "In the spring time, while the bud is yet tender, the tops of the plant being cut off, and boiled, are eaten like asparagus, and found very wholesome and effectual to loosen the body; the heads and tendrils are good to purify the blood in the scurvy, and most cutaneous diseases. Decoctions of the flowers and syrup thereof are of use against pestilential fevers. Juleps and apozems are also prepared with hops, for hypochondriacal and hysterical affections, and to promote the menses. A pillow stuffed with hops, and laid under the head, is said to procure sleep in fevers attended with a delirium."

William Coles, herbarist, in his History of Plants, published in 1657, relating the virtues of hops, says: "They are good to cleanse the kidneys from gravel, and to provoke urine; they likewise open obstructions of the liver and spleen, cleanse the blood, and loosen the belly; and as they cleanse the blood, so consequently they help to cure eruptions of the skin. He also says, half a drachm of the seeds powdered, and taken in drink, will kill worms," and adds, that "the expressed juice will cure the jaundice."

Dr. Brookes in his Dispensatory, published in 1753, speaks thus of the lupulus: "Lupulus, hops, the leaves. They help digestion, open obstructions of the viscera, especially the spleen, promote urine, and loosen the belly; they are good in the hypochondriac passion, the scurvy, and diseases of the skin, if given as an alterative in whey or broths. The depurated juice may be given from two to four ounces, the decoction of the tops from one to two handfuls, and half a drachm of the seeds may be given against worms."

Dr. Lewis, in the second edition of his Dispensatory, speaking of hops, says: "These are one of the most agreeable of the strong bitters, though rarely employed for any medicinal purposes. Their principal consumption is in malt liquors, which they preserve from undergoing the acetous and putrefactive fermentations, render less glutinous, and dispose to pass off more freely by urine. The odour of hops hung in a bed has been said to induce sleep after opium had failed."

In his Materia Medica the same learned author says: "Hops have a very bitter taste, less ungrateful than most of the other strong bitters, accompanied with some degree of warmth and aromatic flavour. They give out their virtue by maceration, without heat, both to rectified and proof spirit, and by warm infusion to water; to cold water they impart little, though macerated in it for many hours. The extracts obtained both by watery and spirituous menstrua, particularly by the latter, are very elegant balsamic bitters, and promise to be applicable to valuable purposes in medicine, though the hop is at present scarcely regarded as a medicinal article, and scarcely otherwise used than for the preserving of malt liquors, which, by the super-addition of this balsamic aperient diuretic bitter, become less mucilaginous, more detergent, more disposed to pass off by urine, and in general more salubrious."

Dr. Motherby says: "The scaly heads of hops have a bitter, warm, aromatic taste; they give out their virtue to spirit, both proof and rectified, by maceration, without heat; and to water by warm infusion. The extract obtained from the spirituous tincture is an elegant bitter. The Spaniards boil a pound of hop roots in a gallon of water to six pints, and drink half a pint of the decoction, whilst in bed, every morning. This they do to cure the lues venerea."

Dr. Cullen, in his Lectures on the materia medica, observes, that "the hop is a pretty strong bitter with a slight aroma." He adds, "from good authority I know that in Spain it is used as a sudorific, to banish the remains of the venereal disease."

Herophilus Lobbius attributes to the hop a lithontriptic power, and says, that by a decoction of it, he has softened the hardest urinary calculi; and Darelius assures us that half a pint, or a whole pint of decoction of hops, drunk in the morning, possesses much virtue as an anthelmintic."

As far as my own experience reaches, the hop merits every attention from the practitioner, in consumption, all disorders arising from weakness of the primæ viæ, gout, and especially calculous complaints.

OFFICINAL PREPARATIONS.

Extract of Hop. (Extractum Humuli.)

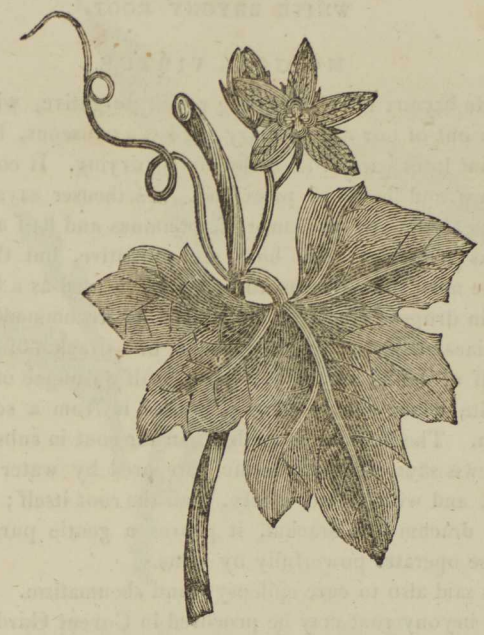
Take of hops, half a pound;
——— water, boiling, a gallon:
Boil down to four pints; strain the hot liquor, and evaporate it to a proper consistence.

The dose is from five to ten grains, made into pills, to be taken three times a day; sometimes a few grains of rhubarb, in powder, is added, which renders it a better tonic.

Tincture of Hop. (Tinctura Humuli.)

Take of hops, five ounces;
——— proof spirit, two pints:
Macerate for fourteen days, and strain.

The dose is half an ounce in a little cinnamon water four times a day. Pills with the extract may be taken along with it. "These were introduced into the New London Pharmacopœia," says Dr. Powels, "as being supposed to possess both a sedative and tonic power."



WHITE BRYONY ROOT.

BRYONIA ALBA.

Class XXII. Diœcia. *Order* X. Syngenesia.

Essent. Gen. Char. Male flower—*Calyx* five-toothed: *Corolla* five-parted: *Filaments* three. Female flower—*Calyx* five-toothed: *Corolla* five-parted: *Styles* three-cleft: *Berry* sub-globular, many-seeded.

Spec. Char. *Leaves* palmate, rough, with dots on both sides.

DESCRIPTION.

The stems twist round bushes, and shoot out to a great extent, tendrilled. The leaves are very large, diminishing to the top gradually, and are palmated. Lobes pointed, irregularly toothed, standing upon long footstalks. Flowers of a yellow green, from the alæ of the leaves, striped with green veins, producing male and female flowers on the same branches. Germen beneath, conspicuous, turning to a bright red berry.

HISTORY.

Native of Britain, common in woods and hedges, flowering in May and June.

MEDICAL VIRTUE.

White bryony root is a strong rough purgative, which is now thrown out of our dispensatory; it has a nauseous, bitter, acrid taste, but loses part of its acrimony by drying. It contains both gummous and resinous principles. Cartheuser says, an ounce contains about half an ounce of gummous and half a drachm of resinous principles; that both are purgative, but the resinous part the most so. It was formerly much used as a hydragogue purge in dropsies; and Dr. Sydenham has recommended it much in maniacal disorders, to the quantity of a drachm of its powder, in a gill of milk; or an infusion of half an ounce of it in a gill of white wine; the dose in substance is from a scruple to a drachm. The infusion is milder than the root in substance; and Dr. Lewis says, that an extract prepared by water acts more mildly, and with greater safety, than the root itself; given from half a drachm to a drachm, it proves a gentle purgative, and likewise operates powerfully by urine.

It is said also to cure epilepsy * and rheumatism.

The bryony root may be procured in Covent Garden, and as an external application I have seen great good result in cases of gout, rheumatism, and paralytic affections. The root is scraped with a knife, and the scrapings, which feel like soap, is to be rubbed over the affected parts once a day. Immediately a sense of tingling is felt, like nettles, which soon goes off: and this mild rubefacient I have found also do good in cases of asthma, rubbed over the chest, and pleuritic affections.

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* Arnoldus de Villa Nova, Breo. Pract. b. 1, c. 22.

CRACK WILLOW.

SALIX FRAGILIS.

Class XXII. Diœcia. *Order* II. Diandria.

ESSENT. GEN. CHAR. Male flower—*Catkin* squamous: *Corolla* none: Nectariferous *Glands*. Female flower—*Catkin* squamous: *Corolla* none: *Style* bifid: *Capsule* one-celled, two-valved: *Seed* pappous.

SPEC. CHAR. *Leaves* serrated, smooth, ovate-lanceolate: *Petiolus* with glandular teeth.

DESCRIPTION.

A LARGISH tree, covered with a gray wrinkled bark. Leaves long, narrow, lance-shaped, serrated, on footstalks. Flowers inconspicuous, seeds numerous, crowned with a simple hairy pappus.

HISTORY.

This tree, which grows in hedges and about the banks of rivers in several parts of England, is easily to be distinguished from the other species of willow by the readiness with which it breaks at the year's shoot last made upon being slightly struck with the finger; and hence the name *fragilis*. It flowers in April and May.

MEDICAL VIRTUE.

Dr. Woodville says, that the bark of the branches of this tree manifests a considerable degree of bitterness to the taste, and is also astringent; hence it has been thought a good substitute for the Peruvian bark, and upon trial is found to stop the paroxysms of intermittents, and it is likewise recommended in other cases as a good tonic. The bark of several of the other willows possess similar properties; as the

COMMON WHITE WILLOW.
SALIX ALBA.

SPEC. CHAR. *Leaves* lanceolate, acuminate, serrated, silky on both sides: *Lowest serratures* glandular: *Stigma* bipartite.

HISTORY.

NATIVE of Britain; found in woods and moist meadows; flowers in April and May.

MEDICAL VIRTUE.

According to Dr. Closs, the bark of this tree has cured many cases of intermittents, and bad scorbutic humours, given in the dose of a scruple every three hours; and in some places they covered their sick labouring under any kind of fever with the leaves of this plant, and so cure them. Haller says that he has ordered a decoction of this bark for a bath to dip weakly infants in, and with much success.

ALMOND-LEAVED WILLOW.
SALIX AMYGDALINA.

SPEC. CHAR. *Stamens* three: *Leaves* ovate, oblique, serrated, smooth: *Germens* pedicelled: *Stipules* very large.

HISTORY.

NATIVE of Britain, in moist places, in osier grounds sometimes, but not common, being a bad osier. This shrub, for it never becomes a tree, flowers in April and May.

MEDICAL VIRTUE.

Gleditsch says that the bark of this willow has an agreeable taste, and that he prefers it to quassia and bark, even for the cure of gangrene.

BAY-LEAVED WILLOW.
SALIX PENTANDRIA.

SPEC. CHAR. *Stamens* five: *Leaves* elliptic-lanceolate, crenulate, smooth: *Petioles* covered with glands: *Germens* smooth, sub-sessile.

HISTORY.

NATIVE of Britain, a shrub, flowering in May and June. This furnishes the best down, which, mixed with one-third cotton, answer all the purposes of that article. It is used like feathers for beds.

MEDICAL VIRTUE.

Gunz (Diss. binæ de Cortice Salicis, Lips. 1772,) has published two dissertations to prove the preference of this bark over that from Peru. It has a fine perfume; and he adds, that the trunk of this tree is not so subject to rot as the other kinds.

GREAT ROUND-LEAVED WILLOW.
SALIX CAPRÆA.

SPEC. CHAR. *Leaves* ovate, acuminate, serrate, undulated, beneath tomentose: *Stipules* sublunate: *Capsules* ventricose.

HISTORY.

NATIVE of Britain, grows to fifteen or twenty feet in height, in woods; flowering in April.

MEDICAL VIRTUE.

The same tonic power resides in this bark as in the other willows, and has been substituted for the cinchona. Mr. White says, since the introduction of the willow bark into practice, at the Bath City Infirmary and Dispensary, as a substitute for the bark, not less than twenty pounds a year have been saved to each charity, and an equal advantage obtained, which circumstance will render it a very valuable article to all hospitals, where much bark is required.

Mr. Wilkinson has ably written on the Cortex salicis latifoliæ, or Broad-leaved willow bark. Probably the barks of most of the willows possess great medicinal virtues.

MISTLETOE.

VISCUM ALBUM.

Class XXII. Dicœcia. *Order* IV. Tetrandria.

ESSENT. GEN. CHAR. Male flower—*Calyx* four-parted: *Corolla* none: *Filaments* none: *Anthers* adhere to the calyx. Female flower—*Calyx* four-leaved, above: *Corolla* none: *Styles* none: *Berry* one-seeded: *Seed* tailed.

SPEC. CHAR. *Stem* dichotomous: *Leaves* in pairs.

DESCRIPTION.

This is a parasitical plant, like a large bush. The branches are regularly dichotomous. Leaves ending blunt, in pairs, sessile, striated, entire. Berry white, smooth, globular, clustered, containing one fleshy seed.

HISTORY.

This plant grows on various kinds of trees, producing its flowers in May, but its berries remain throughout the winter. This singular parasitical plant is found on apple-trees, also on the pear, hawthorn, service, oak, hazel, maple, ash lime-tree, willow, elm, hornbeam, &c.

The viscum should be separated from the oak about Christmas, then gradually dried. It is afterwards to be ground into a fine

powder; which ought to be confined in a bottle, and kept in a situation where both light and air are excluded, as the admission of either tends to deprive this vegetable of its natural efficacy.

MEDICAL VIRTUE.

Instances of the efficacy of the viscus quercinus in epilepsy are published in the writings of Paracelsus, Lemnius, Loseke, Hannes, Koelderer, Cole, Pliny, Swieten, Pfündel, Borellus, Boyle, Colbach, Baier, Cartheuser, and Hartmann.

We are also informed, that the late Dr. Fothergill and Dr. Gilbert Thomson employed this medicine with great success in the cure of epilepsy; and my learned friend Dr. Willan has experienced the utility of this plant in the treatment of that disease.

The learned Dr. Frazer has had equal success with this plant, and published his experience in an ingenious work entitled "On Epilepsy, and the Use of the Viscus Quercinus (Mistletoe of the Oak), in the Cure of that Disease."

NUTMEG TREE.

MYRISTICA MOSCHATA.

Class XXI. Moncœcia. *Order* X. Syngenesia.

ESSENT. GEN. CHAR. Male flower—*Calyx* three-cleft: *Corolla* none: *Anthers* adhering about the upper part of the filament. Female flower—*Calyx* three-cleft: *Corolla* none: *Style* very short: *Stigma* bifid: *Capsule* drupaceous.

SPEC. CHAR. *Leaves* lanceolate: *Fruit* smooth.

DESCRIPTION.

A TREE reaching thirty feet. Leaves elliptical, pointed, undulated, nerved, alternate, on long footstalks, above of a bright green, beneath paler. Flowers small. Fruit round or oval, a drupe, splitting into two valves, which discovers the mace, which has a reticulated appearance, and divides into three portions, which closely invest a slender shell containing the seed, or nutmeg.

HISTORY.

The tree which furnishes this elegant spice is a native of the Molucca islands. It is not, however, cultivated in any of

them except Banda, from which all Europe has been hitherto supplied with mace and nutmeg. The entire fruit is about the size of a peach, and is marked with a longitudinal furrow. The external covering is smooth, fleshy, and bitter. As the fruit ripens, this bursts, and discloses the mace, which is an oily membranous pulp, of a dark red colour, and aromatic flavour, divided into narrow branched slips. Within the mace is inclosed the nut, which consists of a brown, thin, hard shell, and a fatty perenchymatous kernel, of an oval shape. The fruit is gathered three times a year. The external covering is separated on the spot, and the mace and nut carried home, where they are carefully dried in the sun. After they are dried, the nutmegs are dipt in lime water, and the mace is sprinkled with salt water, probably to preserve them from the attacks of insects.

Mace, by drying, acquires a reddish yellow colour. When good it is flexible, thin, oily, of a deep colour, has a strong, agreeable smell, and an aromatic, bitterish acrid taste. When brittle, divided into fewer slips, of a whitish or pale yellow colour, and of little smell, it is to be rejected.

Nutmegs are oval, flattened at both ends, of a gray brown colour, and reticularly furrowed on the outside, of a yellow colour within, variegated with brown undulating lines, solid, hard, unctuous to the feel, and easily cut with a knife; and have a balsamic smell, and agreeable aromatic taste. The small round nutmegs are better than the large oval ones; and they should have a strong smell and taste, and should neither be worm-eaten, musty, nor variegated with black lines. Their activity is, however, confined to the dark-coloured veins, which are not apt to be worm-eaten.

Volatile oil of nutmeg.—By distillation nutmegs yield a considerable quantity of essential oil, of a whitish yellow colour, lighter than water, and possessing the aromatic taste and smell in an eminent degree. In doses of a few drops, it is a powerful carminative and stomachic.

Expressed oil of mace.—Nutmegs also yield by expression a considerable quantity of limpid yellow oil, which, on cooling, acquires a sebaceous consistence. They are first beaten to a soft paste in a warm mortar, then inclosed in a linen bag, exposed to the vapour of hot water, and squeezed in a press, of which the plates have been heated.

It is a mixture of the volatile oil on which their flavour de-

pends, and of a fixed oil, of a white colour, without taste or smell; and as the properties which characterize it depend on the presence of the volatile oil, the denomination of fixed oil, applied to it by the Edinburgh college, is less correct than that of expressed oil, given to it by the other colleges, from the manner of its preparation.

In the shops we meet with three sorts of unctuous substances called oil of mace, though really expressed from the nutmeg. The best is brought from the East Indies, in stone jars; this is of a thick consistence, of the colour of mace, and an agreeable fragrant smell. The second sort, which is paler coloured, and much inferior in quality, comes from Holland, in solid masses, generally flat, and of a square figure. The third, which is the worst of all, and usually called common oil of mace, is an artificial composition of suet, palm oil, and the like, flavoured with a little genuine oil of nutmeg.

Both mace and nutmegs are rather to be considered as aromatic spices, than as articles of medicine. From the essential oil they contain, they are heating and stimulating; and they are added to other medicines for the sake of their agreeable flavour.

PREPARATION.

SPIRIT OF NUTMEG. (Spiritus Nucis Moschatæ, olim Aqua Nucis Moschatæ.)

Take of bruised nutmegs, two ounces;
——— proof spirit, a gallon;
——— water, sufficient to prevent burning:
Distil off a gallon.

This is used to take off the bad flavour of medicine, and is a grateful cordial.

CHIAN OR CYPRUS TURPENTINE TREE.

PISTACIA TEREBINTHUS.

Class XXII. Diœcia. *Order* V. Pentandria.

ESSENT. GEN. CHAR. Male flower—An ament: *Calyx* five-cleft: *Corolla* none. Female flower—*Calyx* three-cleft: *Corolla* none: *Styles* two: *Drupe* one-seeded.

SPEC. CHAR. *Leaves* unequally pinnate: *Leaflets* ovato-lanceolate.

DESCRIPTION.

A LARGISH tree. Leaves pinnated. Pinnæ opposite, in pairs, ending in an odd one. Pinnæ entire, elliptic. Flower inconspicuous.

HISTORY.

The tree which yields the Chian turpentine grows in India, the north of Africa, and south of Europe; but the turpentine is principally collected in the islands of Chios and Cyprus, by wounding the tree. It does not differ from the other turpentines in any thing material, except in its price.

MASTICH TREE.

PISTACIA LENTISCUS.

Class XXII. Diœcia. *Order* V. Pentandria.

ESSENT. GEN. CHAR. Same as the last.

SPEC. CHAR. *Leaves* abruptly pinnated: *Pinnæ* lanceolate.

DESCRIPTION.

THIS tree rises only ten or twelve feet. Leaves alternate, composed of several pairs of pinnæ, ending abrupt. Footstalk winged. Flowers inconspicuous.

HISTORY.

This species is a native of the same countries with the former. The resin is obtained principally in the island of Chios, by making transverse incisions into the tree, and allowing the juice to harden. It is brought to us in small, yellowish, semi-transparent, brittle grains; of a smooth and shining fracture, softening when chewed, fusible, burning with a pleasant smell, insoluble in water, and partially soluble in alcohol and fixed oils. Neumann found that, during digestion with alcohol, a portion separates, insoluble in alcohol, though in appearance resinous, amounting to about one-tenth of the mastich, and analogous to caoutchouc.

It is a common practice with the Turkish women to chew this resin, especially in the morning, not only to render their breath more agreeable, but to whiten the teeth, and strengthen the gums; they also mix it with their fragrant waters, and burn it with other odoriferous substances in the way of fumigation.

As a medicine, mastich is considered to be a mild corroborant and astringent; and as possessing a balsamic power, it has been recommended in hæmoptysis, proceeding from ulceration, fluor albus, debility of the stomach, and in diarrhœas and internal ulcers *. Chewing this drug has likewise been said to have been of use in pains of the teeth and gums, and in some catarrhal complaints; it is now, however, seldom used, either externally or internally.

The lentisci lignum, or wood of this tree, is received into the materia medica of some of the foreign pharmacopœias, and is highly extolled in dyspeptic, gouty, hæmorrhagic, and dysenteric affections †.

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* Degner (De Dysenteria, p. 201,) gave it successfully in these complaints, in doses of ten grains to a scruple, both in substance and in the way of emulsion.

† See Ephem. Nat. Cur. Dec. 3. A. 9, 10. Obs. 135. where it is dignified with the title of vegetable aurum potabile.

CASCARILLA.

CLUTIA ELUTERIA.

Class XXII. Dicœcia. *Order* V. Pentandria.

ESSENT. GEN. CHAR. Male flower—*Calyx* five-leaved: *Corolla* five-petalled. Female flower—*Calyx* five-leaved: *Corolla* five-petalled: *Styles* three: *Capsule* three-celled: *Seed* one.

SPEC. CHAR. *Leaves* cordate-lanced.

DESCRIPTION.

A VERY small tree. Leaves alternate, on long footstalks, entire, lanceolate, elongated towards the point. Flowers in spikes, inconspicuous. Corolla white.

HISTORY.

Native of the Bahama islands, flowers in August. Dr. Woodville, with his natural acumen, has pointed out this as the source of our cascarilla, instead of the croton; but it is possible that both may produce barks of the same, as Dr. Wright, of Jamaica, says, that the croton produces the cascarilla, or what is called eluteria of the shops.

SARSAPARILLA.

SMILAX SARSAPARILLA.

Class XXII. Dicœcia. *Order* VI. Hexandria.

ESSENT. GEN. CHAR. Male flower—*Calyx* six-leaved: *Corolla* none. Female flower—*Calyx* six-leaved: *Corolla* none: *Styles* three: *Berry* three-celled: *Seeds* two.

SPEC. CHAR. *Stem* spiny, angular: *Leaves* unarmed, ovate-mucronate behind, three-nerved.

DESCRIPTION.

STALKS three or four feet, climbing, trailing, slender. Leaves round-ovate, pointed, alternate. Tendrils in pairs from the peduncle of the leaf. Flowers small, of a pale yellow, arising on long peduncles from the alæ of the leaves.

HISTORY.

Native of America, flowering in July and August. The sarsaparilla is brought to us from the Spanish West Indies; it has

a mild, bitterish, and glutinous taste, not at all disagreeable. This root consists of one head, from which a great number of long strings, or small roots, go off: it is these small roots, about the thickness of a goose quill, that are only esteemed in this country; though Dr. Hovius, a physician of great practice at Amsterdam, affirms, that he has found the bulbous, or thick part, more effectuel than the small fibrous.

MEDICAL USE.

This root was first introduced into practice between the year 1560 and 1570, at which time its decoction was looked upon as an effectual medicine for the cure of the lues venerea; it kept its reputation for a considerable time, till at last, somehow or other, it fell into disrepute in this country, and was scarce ever used for many years, till a few years ago that it began to regain its reputation upon its being discovered to be a principal ingredient in the decoctions used at Lisbon for the cure of the venereal disease. At present, strong decoctions of it, made with three ounces of the root to a quart of water, are much used in the cure of these disorders: however, we seldom or never trust to these decoctions alone, but only use them along with mercurials; or after patients have gone through a course of mercury, to carry off any remains of the distemper, or of the mercury, that may be in the blood. It is common to add a small quantity of the antimonial wine (to the quantity of from thirty to sixty drops to the quart) to these decoctions, which increases their operation as diaphoretics, and is believed to increase their efficacy. These decoctions are not only used in venereal cases, but are found to be of great use in purifying the blood, and resolving obstructions in scorbutic and scrophulous cases, and in cutaneous eruptions and many other diseases. I have known two obstinate swellings that had resisted the effect of other remedies for above twelve months, cured by drinking a quart of decoction of this kind daily for some weeks. Decoctions of sarsaparilla ought to be made fresh every day, for they very soon become quite fœtid, and unfit for use, sometimes in less than twenty-four hours in warm weather. Three ounces of the root should be used for making a quart of the decoction; the root, after being well bruised, ought to be put in a proper vessel, and three pints of boiling water poured over it, and let stand for a night, and in the morning the liquor, with the sarsaparilla, ought to be boiled down to a quart, and then strained through a cloth for use. From a pint to a quart of this decoction ought to be drunk daily. A little liquorice root, or cinnamon, or sassafras, may be added to the decoction immediately before it is taken from the fire; or a little cinnamon water may be added to it after it has been strained through a cloth, to make it more agreeable.

OFFICINAL PREPARATIONS.

Decoction of Sarsaparilla. (Decoctum Sarsaparillæ.)

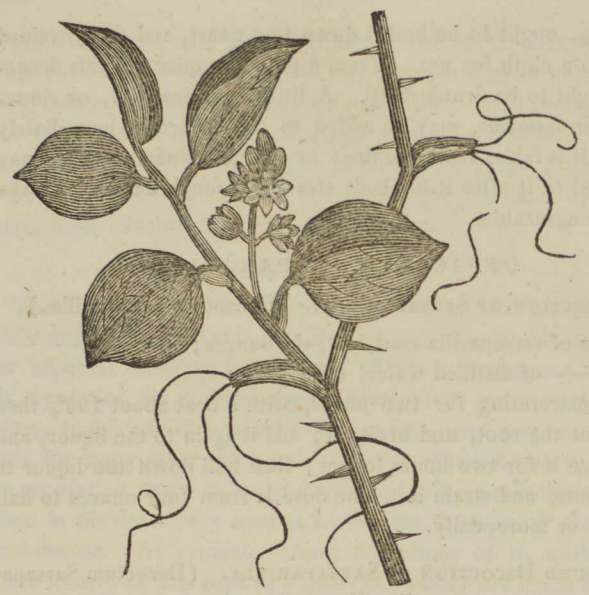
Take of sarsaparilla root, cut, six ounces;
——— of distilled water, eight pints:

After macerating for two hours, with a heat about 195°, then take out the root, and bruise it; add it again to the liquor, and macerate it for two hours longer; then boil down the liquor to four pints, and strain it. The dose is from four ounces to half a pint, or more, daily.

Compound Decoction of Sarsaparilla. (Decoctum Sarsaparillæ Compositum.)

Take of sarsaparilla root, cut and bruised, six ounces;
——— of the bark of sassafras root,
——— of the shavings of guaiac wood,
——— of liquorice root, an ounce of each;
——— of the bark of mezereon root, three drachms;
——— of distilled water, ten pints:

Digest with a gentle heat for six hours, then boil down the liquor to a half (or five pints), adding the bark of the mezereon root towards the end of the boiling. Strain off the liquor. The dose is the same as the last, and for the same purposes.



CHINESE SMILAX.

SMILAX CHINA.

Class XXII. Dicœcia. *Order* VI. Hexandria.

ESSENT. GEN. CHAR. Male flower—*Calyx* six-leaved: *Corolla* none. Female flower—*Calyx* six-leaved: *Corolla* none: *Styles* three: *Berry* three-celled: *Seeds* two.

SPEC. CHAR. *Stem* prickly, roundish: *Leaves* unarmed, ovate-cordate, five-nerved.

DESCRIPTION.

STEMS long, slender, woody, climbing, furnished with claspers. Leaves smooth, pointed, five-nerved, on winged footstalks. Flowers in clusters, white, upon a slender common footstalk, arising from the axillæ of the leaves.

HISTORY.

Native of Jamaica, flowering in August.

MEDICAL VIRTUES.

Ordered for the same purposes as the last, and supposed to have similar virtues, though in rather an inferior degree.

JUNIPER.

JUNIPERUS COMMUNIS.

Class XXII. Dicœcia. *Order* XII. Monadelphia.

ESSENT. GEN. CHAR. Male flower—*Calyx* an ament, scaly: *Corolla* none: *Stamina* three. Female flower—*Calyx* three-parted: *Petals* three: *Styles* three: *Berry* three-seeded.

SPEC. CHAR. *Leaves* ternate, patent, mucronate: *Berry* longer.

DESCRIPTION.

A SHRUB three or four feet high. Leaves numerous, long, narrow, pointed, of a deep green, standing three together, without footstalks. Flowers inconspicuous.

HISTORY.

Native of Britain; an evergreen growing on heaths, flowering in May; also found in all parts of Europe. The berries are chiefly brought from Holland and from Italy. The Italian berries are in general reckoned the best. Juniper-berries have a strong, not disagreeable smell, and a warm, pungent, sweet taste, which, if they are long chewed, or much bruised, is followed by

a bitterish one. Their predominant constituents are essential oil, and a sweet mucilaginous matter.

MEDICAL USE.

To the oil they are indebted for their stimulating carminative, diaphoretic, and diuretic properties. They are most commonly used in the form of infusion, as a diuretic drink in dropsy. The essential oil may be separated by distillation. It possesses the same properties in a higher degree, and imparts them to ardent spirits. The peculiar flavour and well known diuretic effects of Hollands, are owing to the oil of juniper. The decoction and extract are very inert preparations.

Every part of the plant contains the same essential oil; therefore an infusion of the tops is likewise diuretic. The wood, also, was formerly officinal. In warm countries a resin exudes from the juniper tree. It is called sandarac, better known by the name of pounce, used by schoolmasters, and is often mixed with mastich. It is not a pure resin, for, according to Mr. Giese, about one-fifth of it is not soluble in water, or in alcohol, but in ether, resembling in these respects copal.

Of the efficacy of juniper-berries in many hydropical affections, we have various relations by physicians of great authority, as Du Verney, Hoffman, Boerhaave, and his illustrious commentator baron Van Swieten, &c. Authors, however, seem not to be perfectly agreed which preparation of the juniper is most efficacious; many prefer the rob or inspissated decoction; but Dr. Cullen observes, that this is an inert medicine, alleging that the essential oil must be almost entirely dissipated by the boiling; for to this oil, which is much the same as that of turpentine, only of a more agreeable odour, he thinks all the virtues ascribed to the different parts of juniper are to be referred. Hoffman, on the contrary, strongly recommends the rob, and declares it to be of great use in debility of the stomach and intestines; and he experienced it to be particularly serviceable to such old people as are subject to these disorders, or labour under a difficulty with regard to the urinary excretion: from hence it appears that the berries still retain medicinal powers, though deprived of the stimulating effects of the essential oil*. But as

* Van Swieten prescribed the following formula: ℞. rob. bacc. junip. ℥ ii dilue in aquæ junip. ℔ ii. add. spirit. bacc. junip. ℥ ii. Quandoque

the juniper is now seldom, if ever relied upon for the cure of dropsies, and only called to the aid of more powerful remedies, it is justly observed by a modern author, that "perhaps one of the best forms under which the berries can be used is that of a simple infusion. This either by itself, or with the addition of a little gin, is a very useful drink for hydropic patients*." Medical writers have also spoken of the utility of juniper in nephritic cases, uterine obstructions, scorbutic affections, and some cutaneous diseases, and in the two last-mentioned complaints, the wood and tops of the plant are said to have been employed with more advantage than the berries †.

We are told by Linnæus‡ that the Laplanders drink infusions of the juniper-berries as we do tea and coffee, and that the Swedes prepare a beer from them, in great estimation for its diuretic and antiscorbutic qualities. Our pharmacopœias direct the essential oil and a spirituous distillation of the juniper-berries, to be kept in the shops: the former, in doses of two or three drops, is found to be an active and stimulating medicine; the latter contains this oil and that of some other aromatic seeds united to the spirit, and therefore differs not considerably from the genuine geneva imported from Holland; but there is great reason to believe that the gin usually sold here is frequently nothing but the common fumentacious spirit, imbued with turpentine or other materials to give it a flavour.—Woodville.

OFFICINAL PREPARATIONS.

COMPOUND SPIRIT OF JUNIPER. (Spiritus Juniperi Compositus. E. L. D.)

Take of juniper-berries, well bruised, one pound;
——— carraway seeds,
——— sweet fennel seeds, each, bruised, one ounce and a half;
——— diluted alcohol, nine pounds (one gallon, L. D.):

spiritus nitri dulcis ℥ ss. ad sitim sedandam additur. Comment. in Boerh. Aph. t. iv. p. 258. Of this mixture one or two ounces were given every three hours.

* Duncan, New Edin. Dispens. p. 214.

† Bergius says, "Virtus: ligni et summitat. diuretica, sudorifera, mundificans. Bacca diuretica, nutriens, diaphoretica." M. M. p. 810.

‡ Flor. Lapp. p. 301. They are likewise known to afford a pleasant wine. See Du Hamel, Arbres, t. i. p. 325.

Macerate for two days, and, having added as much water as will prevent empyreuma, draw off, by distillation, nine pounds, E. (one gallon, L. D.)

The good and bad effects of this spirit exactly coincide with those of gin.

Gin.

It is of consequence to the sick, that apothecaries should possess this medicine in the genuine state; for gin, or geneva, is the ordinary malt spirit, distilled a secoud time, with the addition of some juniper-berries. Formerly the berries were added to the malt in the grinding; so that the spirit thus obtained was flavoured with the berries from the first, and surpassed all that could be made in any other method: at present they leave out the berries entirely, and give their spirits a flavour by distilling them with a proportion of oil of turpentine; which, though it nearly resembles the flavour of juniper-berries, is heating, and possess not their truly excellent diuretic qualities. As this sophistication is less employed in Holland, we most commonly order Hollands and water as drink for our dropsical patients.

LYCIAN JUNIPER.

JUNIPERUS LYCIA.

Class XXII. Dicœcia. *Order* XII. Monadelphia.

Essent. Gen. Char. Same as the last.

Spec. Char. *Leaves* ternate, every where imbricated, obtuse.

DESCRIPTION.

A small shrub. Leaves small, variously divided, every where imbricated with close scales. Flowers inconspicuous. Berries large, and, when ripe, of a brown colour.

HISTORY.

Native of the south of Europe, flowers from May to June. The officinal gummy-resinous substance, known by the name of olibanum, is said to ooze spontaneously from the bark of this tree, appearing in drops or tears, of a pale yellowish, and sometimes of a reddish colour. It is principally collected in Arabia, and brought from Mecca to Cairo, from whence it is imported into Europe. It consists of transparent brittle grains of diffe-

rent sizes, not larger than a chesnut, of a red or yellow colour, having little taste, and a peculiar aromatic smell. Neumann got from 480 grains, 346 alcoholic and 125 watery extract; and inversely, 200 watery and 273 alcoholic. The distilled spirit and oil both smelt of olibanum, but no oil separated. It forms a transparent solution with alcohol, and a milky fluid when triturated with water: it is not fusible, but inflammable, and burns with an agreeable smell. It is the frankincense of the ancients; and the diffusion of its vapour around the altar still forms a part of the ceremonies of the Greek and Roman catholic countries.

COMMON SAVIN.

JUNIPERUS SABINA.

Class XXII. Diœcia. *Order* XII. Monadelphia.

ESSENT. GEN. CHAR. The same as the first.

SPEC. CHAR. *Leaves* opposite, erect, decurrent, the oppositions closed.

DESCRIPTION.

THIS plant rises a few feet. Leaves numerous, firm-pointed, inverting the younger branches. Flowers inconspicuous, producing a blackish purple berry.

HISTORY.

Native of the south of Europe, and the Levant; flowering in May and June.

MEDICAL VIRTUE.

It acts as a powerful and perhaps dangerous emmenagogue. Dr. Cullen observes, "that Savin is a very acrid and heating substance, and I have been often, upon account of these qualities, prevented from employing it in the quantity perhaps necessary to render it emmenagogue. I must own, however, that it shows a more powerful determination to the uterus than any

other plant I have employed; but I have been frequently disappointed in this, and its heating qualities always require a great deal of caution." Dr. Home appears to have had very great success with this medicine; for in five cases of amenorrhœa which occurred at the royal infirmary at Edinburgh, four were cured by the sabina*, which he gave in powder from a scruple to a drachm twice a day. He says it is well suited to the debile, but improper in plethoric habits, and therefore orders repeated bleedings before its exhibition. Externally savin is recommended as an escharotic to foul ulcers, syphilitic warts, &c.†; also an excellent drawing ointment for issues is prepared with the powder.

OFFICINAL PREPARATIONS.

EXTRACT OF SAVIN. (Extractum Foliorum Sabinæ. L. D.)

The vegetable matter is to be boiled, in eight times its weight of water, to one-half; the liquor is then to be expressed, and, after the fæces have subsided, to be filtered; it is then to be evaporated, with a heat between 200° and 212°, until it becomes thickish; and lastly, it is to be evaporated with a heat less than 200°, and frequently stirred, until it acquire a consistence proper for forming pills. The dose is from six grains to twenty.

"I think," says Dr. Monro, "both this extract and that of the rue would be better medicines if the plants were first infused in spirits before they were boiled; and when the extracts were nearly of a proper consistence, if the tinctures thus drawn were added to them; by this means they would possess more of the aromatic virtues of the plant, and contain the resinous as well as the gummous parts of it."

SAVIN OINTMENT. (Unguentum Sabinæ. D.)

Take of fresh savin leaves, separated from the stalks, and bruised, half a pound;
——— prepared hog's lard, two pounds;
——— yellow wax, half a pound:

Boil the leaves in the lard until they become crisp; then filter with expression; lastly, add the wax, and melt them together.

This is an excellant issue ointment, being, in many respects, preferable to those of cantharides. It is mixed with equal parts blistering ointment in order to keep up a discharge.

* Clinical Experiments, p. 387.

† Fabre, Mal. Vener. t. i. p. 365.

PAREIRA BRAVA.

CISSAMPELOS PAREIRA.

Class XXII. Dicœcia. *Order* XII. Monadelphia.

ESSENT. GEN. CHAR. Male flower—*Calyx* four-leaved: *Corolla* none: *Nectary* rotate: *Stamina* four. Female flower—*Calyx* one-leafed, ligulate roundish: *Corolla* none: *Styles* three: *Berry* one-seeded.

SPEC. CHAR. *Leaves* peltate, cordate, emarginate.

DESCRIPTION.

STALKS numerous, climbing. Leaves roundish, entire, covered with soft hairs, supported by long footstalks. Flowers inconspicuous, of a greenish colour, arising from the alæ of the leaves.

HISTORY.

This is a perennial climbing plant, which grows in the West India islands, and in South America. The root, which is officinal, is brought to us from Brazil, in pieces of very different sizes; it is crooked, and variously wrinkled on the surface; outwardly of a dark colour, internally of a dull yellow, and interwoven with woody fibres; so that, upon a transverse section,

a number of concentric circles appear, crossed with fibres, which run from the centre to the circumference. It has no smell; the taste is a little bitterish, blended with a sweetness like that of liquorice.

MEDICAL USE.

The root is highly extolled by the Americans and Portuguese in a great variety of diseases, particularly against suppressions of urine, nephritic pains, and calculus. Geoffroy also found it useful in nephritic disorders, in ulcers of the kidneys and bladder, in humoral asthmas, and in some species of jaundice. The common people of Jamaica use a decoction of the roots for pains and weakness of the stomach proceeding from relaxation. The dose of the root in substance is from twelve grains to half a drachm; in decoction, to two or three drachms. M. Geoffroy, in a paper inserted in the Memoirs of the Royal Academy of Sciences for the year 1710, says, that he has often tried it in nephritic colics with success, and that he thinks it a useful remedy in ulcers of the kidney and bladder; his method of preparing it was, to boil two drachms of it from three pints of water to one, to sweeten the strained liquor with sugar, and to give it by tea-cupfuls at a time.

BUTCHER'S BROOM.

RUSCUS ACULEATUS.

Class XXII. Diœcia. *Order* X. Syngenesia.

Essent. Gen. Char. Male flower—*Calyx* six-leaved: *Corolla* none: *Nectary* central, ovate, perforated at the apex. Female flower—*Calyx*, *Corolla*, and *Nectary*, similar to the male: *Styles* one: *Berry* three-celled: *Seeds* two.

Spec. Char. *Leaves* with pungent points, bearing the flowers above, naked.

DESCRIPTION.

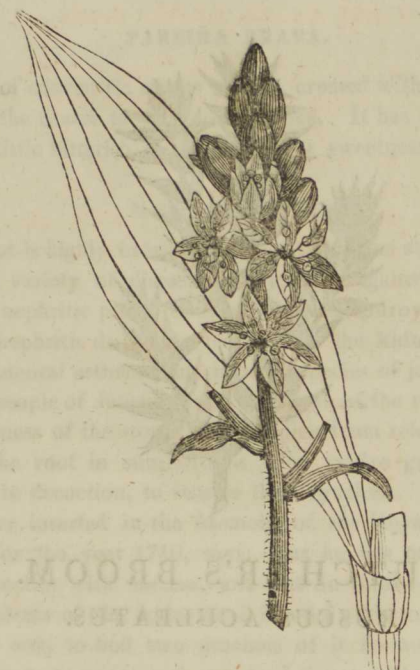
A shrub, seldom exceeding a foot. Leaves bearing the flowers sessile, ovate, rigid, sharply pointed, entire, marked with parallel veins. Flowers conspicuous, fixed on the leaves. Female producing a three-celled red berry, containing two globular seeds.

HISTORY.

Native of Britain in woods and thickets, flowering in March and April.

MEDICAL VIRTUE.

Riverius relates a case of dropsy successfully treated by a decoction of the roots of this plant; but at present it is rarely, if ever, employed in medicine.



WHITE HELLEBORE, OR VERATRUM.

VERATRUM ALBUM.

Class III. Polygamia. *Order* I. Monœcia.

ESSENT. GEN. CHAR. *Calyx* none: *Corolla* six-petalled: *Stamina* six: *Pistils* three: *Capsules* three, many-seeded.

SPEC. CHAR. *Raceme* more than decomposed: *Corollas* erect.

DESCRIPTION.

THIS plant rises four feet. The leaves are numerous, very large, oval, ribbed, entire, plaited, sessile, vaginant. Flowers bisexual; also male flowers, of a greenish colour, on very long, branched, terminal spikes.

HISTORY.

Native of Italy, Switzerland, and Austria, flowering from June to August.

MEDICAL VIRTUE.

White hellebore root is a nauseous, hot, acrid substance, which, taken internally, is a very strong emetic and cathartic, and has sometimes operated so violently as to occasion convulsions, and death; on which account it is now laid aside, though it is still used as an external application in some cutaneous disorders. Its powder, mixed with oily substances, or a strong decoction of it, applied to the affected parts, cures the itch as effectually as sulphureous ointments do.

We had a tincture of it in our dispensatory, called tinctura veratri, drawn with a proof spirit, which proved a violent emetic and cathartic, taken from half a drachm to two drachms; it was sometimes used as an alterative, the length of a few drops; but it has been thrown out of the new dispensatory, having never been used of late, on account of its virulence.

Nevertheless the ancients are high in their encomiums on this plant in cases of mania and epilepsy, and similar observations have been made of veratrum by authors of later times. Mayerne* gave from two to three grains of an extract of this root with considerable advantage in maniacal cases, where no remarkable evacuation took place; and Con. Gesner †, who investigated the qualities of veratrum by repeated experiments, and whose encomiums on its efficacy seemed for a while to restore it to the ancient character of hellebore, expressly declares that he did not give it as an evacuant, but to produce the more gradual effects of those medicines termed alteratives. Gesner's account of veratrum was followed by those of several other authors ‡, in which it is said to have been serviceable in various chronic diseases. But the fullest trial which seems to have been lately made of the efficacy of veratrum is by Greding §, who

* Prax. Med. lib. i. c. 7. p. 69. sq.

† He says, Non ad purgandum, sed ad reserandos meatus et crassos humores attenuandum, eosque a centro et interioribus corporis ad superficiem et vias excretionum variarum educendum." Adding, "recreat et roborat, et hilariorem facit, et acuit ingenium: quod in me et aliis sæpissime expertus scribo." Had Gesner lived long enough, he had still more to say on this subject. "Ego, si vixero, in Hellebori historia multa proferam, quæ medici admirentur." L. c.

‡ Hannemann, Quercetanus, Screta, Wepfer, Muralto, Linder.

§ Vermischte Med. u. Chirurg. Schriften. Altenb. 1781, to p. 30. Wendt relates a case of mania, brought on by taking pepper and spirits

employed it in a great number of cases (twenty-eight) of the maniacal and melancholic kind; the majority of these, as might be expected, derived no permanent benefit; several, however, were relieved, and five completely cured by this medicine. It was the bark of the root, collected in the spring, which he gave in powder, beginning with one grain: this dose was gradually increased according to its effects. With some patients one or two grains excited nausea and vomiting, but generally eight grains were required to produce this effect, though in a few instances a scruple, and even more, was given. We may also remark, that he sometimes used the extract prepared after Stoerck's manner. In almost every case which he relates, the medicine acted more or less upon all the excretions: vomiting and purging were very generally produced, and the matter thrown off the stomach was constantly mixed with bile; a florid redness frequently appeared on the face, and various cutaneous efflorescences upon the body; and in some, pleuretic symptoms with fever supervened, so as to require bleeding, nor were the more alarming affections of spasms and convulsions unfrequent. Critical evacuations, we are told, were often very evident, many sweated profusely, in some the urine was considerably increased, in others the saliva and the mucous discharges: also uterine obstructions, of long continuance, were often removed by this drug.

Veratrum has likewise been found useful in epilepsy, and other convulsive complaints*; but the diseases in which its efficacy seems least equivocal are those of the skin†, as scabies and different prurient eruptions, herpes, morbus pediculosus, lepra, scrophula, &c., and in many of these it has been successfully employed both internally and externally.

As a powerful stimulant, and irritating medicine, its use has been resorted to only in desperate cases, and then it is first to

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of wine as a remedy for the ague; the disease continued thirty-three weeks, when it was said to have been cured by a decoction of white hellebore; but as copious and repeated bleedings, with other means, were employed, the cure cannot wholly be ascribed to the hellebore. See Agassiz. Diss. de Therapia Maniæ. Erl. 1785, p. 37.

* Greding, l. c. See also Smyth in Medical Communications, vol. i. p. 207.

† Its success in these complaints is mentioned both by the ancient and modern writers. Smyth relates three cases. See l. c.

be tried in very small doses, in a diluted state, and to be gradually increased according to the effects.

PRESCRIPTION.

℞. 1. Take of powdered white hellebore - drachms 2,
——— flowers of sulphur - - - ounce 1,
——— essence of lemon - - - scruples 2,
——— hog's lard - - - - - - ounces 2:

Make into an ointment. Smear all the joints for three nights with this, wash it off in the morning with soap and water, and take flowers of sulphur mixed with honey or treacle, so as to keep the body open; repeat the smearing for three times at the interval of two days, and the most inveterate itch is certain to disappear.

WALL PELLITORY.

PARIETARIA OFFICINALIS.

Class XXIII. Polygamia. *Order* I. Monœcia.

ESSENT. GEN. CHAR. Bisexual flower—*Calyx* four-cleft: *Corolla* none: *Stamina* four: *Style* one: *Seed* one, above, elongated. Female flower—*Calyx* four-cleft: *Corolla* none: *Stamens* none: *Style* one: *Seed* one, above, elongated.

DESCRIPTION.

A SMALL plant. Leaves elliptic, pointed, veined, on short footstalks. Flowers clustered, small, inconspicuous, of a greenish colour tinged with red, placed at the alæ of the leaves.

HISTORY.

Native of Britain, common on old walls and amongst rubbish, flowering from May till September.

MEDICAL VIRTUE.

Floyer says that this herb is powerfully diuretic: and Haller

says, "We have the history of a dog, who being often attacked with a suppression of urine, relieved himself by finding out and eating the parietaria, and when he could find no more of this plant he died, when there was found a calculus, whose inequalities of surface gave traces of the action of this remedy." Clarke says that the milk from goats fed much upon this herb, given after the operation of tapping, has done wonders. Marcellus recommends employing the carbon of this plant to preserve and whiten the teeth. The leaves strewed in granaries are said to destroy the corn weevil.

ÆGYPTIAN MIMOSA.

MIMOSA NILOTICA.

Class XXIII. Polygamia. *Order* I. Monœcia.

ESSENT. GEN. CHAR. Bisexual flower—*Calyx* five-cleft: *Stamina* five, or more: *Pistil* one: a *Legume*. Male flower—*Calyx* five-toothed: *Corolla* five-cleft: *Stamina* five, ten, or more.

SPEC. CHAR. *Spines* stipular, spreading: outer partial *Leaves* separated by a gland: *Spikes* globular, peduncled.

DESCRIPTION.

THIS tree rises ten or twelve feet. Leaves bipinnate, alternate. Pinnæ opposite. Spines long, white, spreading, and proceed from each side of the base of the leaves. Flowers globular, conspicuous from their numerous filaments and yellow anthers, producing long pods.

HISTORY.

Native of Arabia and Ægypt, and flowers in July. The

greatest quantity of pure gum, commonly called gum arabic, is furnished by this tree, from which it exudes either spontaneously, or from incisions made into the bark, and afterwards hardens in the air. But a similar gum may be obtained from all the species of mimosa, and from many other trees, such as the Swietenia febrifuga, Melia azadirachta, and the different species of terminalia. It is remarkable that the barks of all the trees which furnish this bland mucilaginous substance are highly astringent; that of the Mimosa nilotica itself is used in India for tanning; and in our country, the cherry and plum trees, which sometimes yield a little gum, have very astringent barks.

There are two kinds of gum found in the shops, and sold promiscuously; gum arabic, which comes from the Levant, and East India gum. Gum arabic consists of roundish transparent tears, colourless, or of a yellowish colour, shining fracture, without smell or taste, and perfectly soluble in water. The pieces which are most transparent, and have least colour, are reckoned the best. They are sometimes selected from the gum arabic in sorts, and sold for about double the price, under the title of pickled gum. The East India gum is darker coloured than gum arabic, and is not so readily soluble in water.

MEDICAL USE.

It possesses the powers of a mucilaginous demulcent in a high degree; and is frequently exhibited in diarrhœa, dysentery, chincough, hoarseness, strangury, &c.; and is an extremely useful article for giving form to some remedies, and for correcting the acrimony of others.

OFFICINAL PREPARATIONS.

MUCILAGE OF GUM ARABIC. (Mucilago Mimosæ Niloticæ. E.)

Take of gum arabic, in powder, one part;
——— boiling water, two parts:
Digest with frequent agitation, until the gum be dissolved; then press the mucilage through linen.

MUCILAGE OF GUM ARABIC. (Mucilago Arabici Gummi. L.)

Take of gum arabic, in powder, four ounces;
——— boiling distilled water, eight ounces:
Triturate the gum with the water until it be dissolved.

Dub.

Take of gum arabic, in coarse powder, four ounces;
——— boiling water, eight ounces, by measure:
Digest with frequent agitation, till the gum be dissolved, then strain the mucilage through linen.

It is very necessary to pass the mucilage through linen, in order to free it from pieces of wood and other impurities, which always adhere to the gum: the linen may be placed in a funnel.

Mucilage of gum arabic is very useful in many operations in pharmacy; it is also much used for properties peculiar to those substances of its own class; and of all the gums, it seems to be the purest.

ALMOND EMULSION. (Emulsio Amygdalæ Communis. E.)

Take of sweet almonds, one ounce;
——— water, two pounds and a half:
Beat diligently the blanched almonds, in a stone mortar, gradually pouring on them the water; then strain the liquor.

ALMOND MILK. (Lac Amygdalæ. L. D.)

Take of sweet almonds, blanched, an ounce and a half;
——— double refined sugar, half an ounce;
——— distilled water, two pints, (two pints and a half, D.):
Beat the almonds with the sugar; then rubbing them together, add by degrees the water, and strain the liquor.

ARABIC EMULSION. (Emulsio Mimosæ Niloticæ, vulgo Emulsio Arabica. E.)

Is made in the same manner as the almond emulsion, only adding, while beating the almonds,
Mucilage of gum arabic, two ounces.

ARABIC EMULSION. (Emulsio Arabica. D.)

Take of gum arabic, in powder, two drachms;
——— sweet almonds, blanched,
——— double refined sugar, each half a drachm;
——— decoction of barley, one pint:
Dissolve the gum in the warm decoction, and when it is almost cold, pour it upon the almonds previously well beaten with the sugar, and at the same time triturate them together, so as to form an emulsion, and then filter.

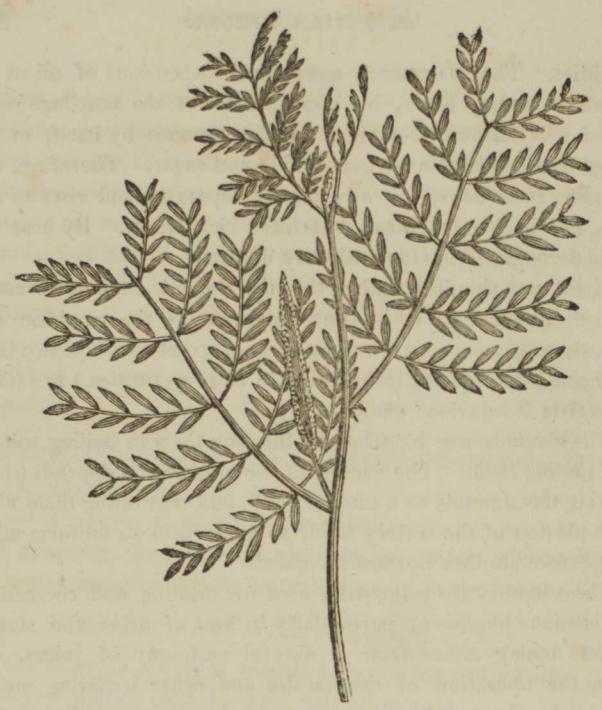
All these may be considered as possessing nearly the same

qualities. They are merely mechanical suspensions of oil of almonds in watery fluids, by means either of the mucilage with which it is naturally combined in the almonds by itself, or assisted by the addition of gum arabic and sugar. Therefore, on standing some days, the oily matter separates and rises to the top, not in a pure form, but like thick cream. By heat the same decomposition is immediately effected.

Great care should be taken that the almonds have not become rancid by keeping, which not only renders the emulsion extremely unpleasant, (a circumstance of great consequence in a medicine that requires to be taken in large quantities,) but likewise gives it injurious qualities.

The almonds are blanched by infusing them in boiling water, and peeling them. The success of the preparation depends upon beating the almonds to a smooth pulp, and triturating them with each portion of the watery fluid, so as to form an uniform mixture before another portion be added.

These liquors are principally used for diluting and correcting acrimonious humours; particularly in heat of urine and stranguries, arising either from a natural acrimony of juices, or from the operation of cantharides and other irritating medicines. In these cases they are to be drunk frequently, to the quantity of half a pint, or more, at a time.



CATECHU MIMOSA.

MIMOSA CATECHU.

Class XXIII. Polygamia. *Order* I. Monœcia.

ESSENT. GEN. CHAR. The same as the last.

SPEC. CHAR. *Spines* stipular: *Leaves* bipinnate: *Pinnæ* numerous: *Glands* of the partial ones solitary: *Spikes* filiform, axillary, in pairs or threes, peduncled.

DESCRIPTION.

A TREE twelve feet in height. Leaves doubly winged, alternate. Pinnæ from fifteen to thirty pair. Spines in pairs, at the basis of each leaf, small, recurved. Flowers in close spikes, arising from the axillæ of the leaves. Filaments numerous, capillary, double the length of the corolla, crowned with round yellow anthers. Fruit, a long pod.

HISTORY.

This tree is abundant in the mountainous parts of Hindostan, where it flowers in June. The extract of catechu, which was formerly termed, with peculiar impropriety, Japan earth, is principally prepared from the internal coloured part of the wood, by decoction, evaporation, and exsiccation in the sun. But catechu is also prepared in India from several other species of mimosa, and even from the woods, barks, and fruits of other genera.

There are two kinds of this extract; one is sent from Bombay, the other from Bengal. The extract from Bombay is of a uniform texture, and of a red brown tint, its specific gravity being generally about 1·39. The extract from Bengal is more friable and less consistent. Its colour is like that of chocolate externally; but, when broken, its fracture presents streaks of chocolate and of red brown. Its specific gravity is about 1·28. Their tastes are precisely similar, being astringent, but leaving in the mouth a sensation of sweetness. They do not deliquesce, or apparently change by exposure to the air, and are not fusible.

By Mr. Davy's analysis, 200 grains gave,

	Bombay.	Bengal.
Tannin	109	97
Peculiar extractive matter	68	73
Mucilage	13	16
Residual matter, chiefly sand and calcareous earth	10	14

MEDICAL USE.

Catechu is one of the most convenient and powerful astringents we possess, and may be exhibited in every case where astringents are indicated. It is particularly serviceable in diarrhœa, in hoarseness from relaxation of the fauces, ulcers and aphthæ of the mouth, and in excoriations with lymphatic exudations.

The antiseptic quality of catechu appears from the experiments made by sir John Pringle. (Vide Dis. of the Army, App. Exp. 10.) Huxham employed it successfully in cases where a putrid dissolved state of the blood prevailed. This extract is the principal ingredient in an ointment of great repute in India, composed of catechu four ounces, alum nine drachms, white resin four ounces; these are reduced to a fine powder, and

mixed with the hand, adding olive oil ten ounces, and a sufficient quantity of water to bring the mass to the consistence of an ointment. To all sores and ulcers in warm climates astringent applications of this kind are found to be particularly useful.

PREPARATIONS.

ELECTUARY OF CATECHU, COMMONLY CALLED JAPONIC CONFECTION. (Electuarium Mimosæ Catechu, olim Confectio Japonica. E.)

Take of extract of mimosa catechu, four ounces;
——— kino, three ounces;
——— cinnamon,
——— nutmeg, each one ounce;
——— opium, diffused in a sufficient quantity of Spanish white wine, one drachm and a half;
——— syrup of red roses, boiled to the consistence of honey, two pounds and a quarter:

Reduce the solids to powder; and, having mixed them with the opium and syrup, make them into an electuary.

COMPOUND ELECTUARY OF CATECHU. (Electuarium Catechu Compositum. D.)

Take of catechu, four ounces;
——— cinnamon, two ounces;
——— kino, three ounces: powder these; then add,
——— hard purified opium, diffused in Spanish white wine, a drachm and a half;
——— syrup of ginger, evaporated to the consistence of honey, two pounds and a quarter:

Mix them.

These electuaries, which do not differ in any material particular, are extremely useful astringent medicines, and are often given in doses of a tea-spoonful, frequently repeated, in cases of diarrhœa, &c. Ten scruples contain one grain of opium.

INFUSION OF CATECHU, COMMONLY CALLED JAPONIC INFUSION. (Infusum Mimosæ Catechu, vulgo Infusum Japonicum. E.)

Take of extract of catechu, in powder, two drachms and a half;
——— cinnamon, bruised, half a drachm;
——— boiling water, seven ounces;
——— simple syrup, one ounce:

Macerate the extract and cinnamon in the water, in a covered vessel, for two hours; then strain it, and add the syrup.

As this preparation will not keep above a day or two, it must always be made extemporaneously. The two hours maceration, therefore, becomes very often extremely inconvenient; but it may be prepared in a few minutes by boiling, without in the least impairing the virtues of the medicine.

Extract of catechu is almost pure tannin. This infusion is therefore a powerfully astringent solution. The cinnamon and syrup render it sufficiently agreeable, and it will be found serviceable in diarrhœas proceeding from a laxity of the intestines. Its dose is a spoonful or two every other hour, or after every loose stool.

TINCTURE OF CATECHU. (Tinctura Mimosæ Catechu, olim Tinctura Japonica. E. Tinctura Catechu. L. D.)

Take of extract of catechu, three ounces;
——— cinnamon, bruised, two ounces;
——— diluted alcohol, two pounds and a half, (two pints, L. D.:)

Digest for seven days, and strain through paper.

The cinnamon is a very useful addition to the catechu, not only as it warms the stomach, but likewise as it covers its roughness and astringency.

This tincture is of service in all kinds of defluxions, catarrhs, loosenesses, uterine fluxes, and other disorders where astringent medicines are indicated. Two or three tea-spoonfuls may be taken every now and then in red wine, or any other proper vehicle.

PRESCRIPTIONS.

℞. 1. Take of catechu, in powder - - grains 15,
——— purified alum - - - - grains 3,
——— conserve of roses - - - drachm ½,
——— syrup of white poppies, as much as is sufficient:

Make into a bolus, to be taken at bed-time, to stop diarrhœa.

℞. 2. Take of catechu, in powder - - drachm ½,
——— syrup of clove July-flowers, as much as is sufficient:

Make into a bolus, to be taken three times a day. Excellent in diarrhœa.

℞. 3. Take of catechu, in powder,
——— compound powder of chalk, of each, drachms 4,
——— syrup of poppies, as much as is sufficient:
Make into an electuary, of which take the size of a nutmeg three or four times a day. Given in diarrhœa.

℞. 4. Take of catechu, in powder,
——— conserve of red roses, equal parts, drachms 2,
——— mucilage of gum arabic, as much as is sufficient:
Make into lozenges, of which one is to be frequently put into the mouth.

℞. 5. Take of catechu, in powder,
——— simarouba bark,
——— cinnamon, of each - - drachms 2,
——— boiling water - - - - pint 1:
Macerate for four hours in a covered vessel: strain.

℞. 6. Take of the strained liquor - - - - ounces 7,
——— compound tincture of cardamoms, ounce 1,
——— opiate confection - - - - drachm 1:
Make into a mixture, of which take two table-spoonsful four times a day. Excellent in fluxes of all kinds.

FLOWERING ASH.

FRAXINUS ORNUS.

Class XXIII. Polygamia. *Order* II. Dicœcia.

ESSENT. GEN. CHAR. Bisexual flower—*Calyx* none, or four-parted: *Corolla* none, or four-petalled: *Stamina* two: *Pistil* one, lanceolate.

SPEC. CHAR. *Leaves* ovate-oblong, serrated, petioled: *Corolla* four-parted.

DESCRIPTION.

A LOFTY tree. Leaves pinnated, opposite, consisting of three or four pair of pinnæ, terminating with an odd one of a bright green. Flowers in branched spikes. Segments of the corolla linear and sharp-pointed.

HISTORY.

Native of the south of Europe, particularly Sicily and Calabria. The manner in which the manna is obtained from the Ornus, though very simple, has been yet very much misunderstood by all who have travelled in the kingdom of Naples; and among other things they seem to agree that the best and purest

manna is obtained from the leaves of the tree; but this, I believe, is an opinion taken from the doctrine of the ancients, and received as an incontestable observation, without consulting nature. I never saw such a kind, and all those who are employed in the gathering of the manna know of none that comes from the leaves. The manna is generally of two kinds; not on account of the intrinsic quality of them being different, but only because they are got in a different manner. In order to have the manna, those who have the management of the woods of the orni, in the month of July and August, when the weather is very dry and warm, make an oblong incision, and take off from the bark of the tree about three inches in length and two in breadth; they leave the wound open, and by degrees the manna runs out, and is almost suddenly thickened to its proper consistence, and is found adhering to the bark of the tree. This manna, which is collected in baskets, and goes under the name of *manna grassa*, is put in a dry place, because moist and wet places will soon dissolve it again. This first kind is often in large irregular pieces of a brownish colour, and frequently is full of dust and other impurities. But when the people want to have a very fine manna, they apply to the incision of the bark thin straw, or small bits of shrubs, so that the manna, in coming out, runs upon those bodies, and is collected in a sort of regular tubes, which give it the name of *manna in cannoli*, that is, manna in tubes: this second kind is more esteemed, and always preferred to the other, because it is free and clear. There is indeed a third kind of manna, which is not commonly to be met with, and which I have seen after I left Calabria: it is very white, like sugar; but as it is rather for curiosity than for use, I shall say no more of it. The two sorts of manna already mentioned undergo no kind of preparation whatsoever before they are exported; sometimes they are finer, particularly the manna grassa, and sometimes very dirty and full of impurities; but the Neapolitans have no interest in adulterating the manna, because they always have a great deal more than what they generally export; and if manna is kept in the magazines, it receives often very great hurt by the southern winds, so common in our part of the world. The changes of the weather produce a sudden alteration in the time that the manna is to be gathered; and for this reason, when the summer is rainy, the manna is always very scarce and very bad.

MEDICAL VIRTUE.

Manna, Dr. Woodville well observes, is a gentle purgative, so mild in its operation that it may be given with safety to children and pregnant women; in some constitutions, however, it produces troublesome flatulencies, and therefore requires the addition of a suitable aromatic, especially when given to an adult, where a large dose is necessary; it is therefore usually acuated by some other cathartic of a more powerful kind. The efficacy of manna is said, by Vallisnieri, to be much promoted by cassia fistularis, a mixture of the two purging more than both of them separately; it is therefore very properly an ingredient in the electuarium e cassia.

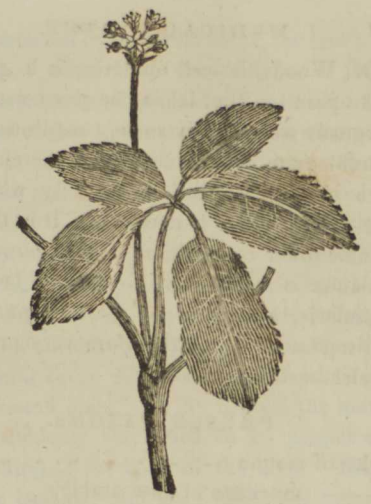
PRESCRIPTIONS.

℞. 1. Take of manna - - - - - - - - ounce 1,
——— mucilage of gum arabic,
——— oil of almonds,
——— syrup of lemons, of each - drachms 2:
Make into a linctus, of which give a tea-spoonful to a child at bed-time.

℞. 2. Take of manna,
——— oil of almonds, of each - - - - - ounce 1,
——— prepared kali - - - - - - - grains 12,
——— cinnamon,
——— rose water, of each - - - - - - ounces 3:
Mix carefully the oil, kali, and manna together, gradually pouring the liquids to form an emulsion, of which take two table-spoonsful night and morning. One of our mildest purges, the alkali and oil making a kind of extemporaneous soap.

℞. 3. Take of manna - - - - - - - - ounces 2,
——— tamarinds - - - - - - - - ounce 1,
——— rose water - - - - - - - - ounces 8:
Boil the rose water and tamarinds together for a quarter of an hour, then add the manna.

Three table-spoonsful is to be taken every three hours, until a motion is obtained. Less is to be given to a child. A most mild purge.



GINSENG.

PANAX QUINQUEFOLIUM.

Class XXIII. Polygamia. *Order* II. Dicœcia.

ESSENT. GEN. CHAR. Bisexual flower an *Umbel*: *Calyx* five-toothed, above: *Corolla* five-petalled: *Stamina* five: *Styles* two: *Berry* two-seeded.

SPEC. CHAR. *Leaves* in threes or fives.

DESCRIPTION.

THIS plant rises a foot. The leaves arise with the flower-stalk from a thick joint in the stem. Leaves have the appearance from their disposition of being one digitated leaf, on short purple footstalks, one on a long footstalk, all fixed to a common petiolus, veined, serrated, pointed, smooth. Flowers small, forming a small round umbel.

HISTORY.

This is a perennial plant, which grows in Tartary and North America, flowering with us in June. The root is about the thickness of the little finger; an inch or two in length, often dividing into two branches; of a whitish yellow colour, wrinkled on the surface; of a compact, almost horny texture; when

broken, exhibiting a resinous circle in the middle, of a reddish colour. It has no smell, but a very sweet taste, combined with a slight degree of aromatic bitterness.

MEDICAL VIRTUE.

The Chinese, probably on account of its scarcity, have a very extraordinary opinion of the virtues of this root, so that it sells for many times its weight in silver. The Americans, on the contrary, disregard it, because it is found plentifully in their woods. In fact, it is a gentle and agreeable stimulant.

Jartoux, speaking of the effect of this plant on him, says: "I observed the state of my pulse, and then took half of a root raw: in an hour after I found my pulse much fuller and quicker; I had an appetite, and found myself much more vigorous, and could bear labour much better and easier than before. But I did not rely on this trial alone, imagining that this alteration might proceed from the rest we had that day; but four days after, finding myself so fatigued and weary that I could scarce sit on horseback, a mandarin who was in company with us perceiving it, gave me one of these roots; I took half of it immediately, and an hour after I was not the least sensible of any weariness. I have often made use of it since, and always with the same success. I have observed also, that the green leaves, and especially the fibrous parts of them, chewed, would produce nearly the same effect."—Phil. Trans. vol. xxviii. p. 239.

The dose is from a scruple to a drachm.

COMMON FIG TREE.

FICUS CARICA.

Class XXIII. Polygamia. *Order* III. Triœcia.

ESSENT. GEN. CHAR. *Common Receptacle* top-shaped, fleshy, concealing the flowers either in the same or distinct fruits. Male flower—*Calyx* three-parted: *Corolla* none: *Stamens* three. Female flower—*Calyx* five-parted: *Corolla* none: *Pistil* one: *Seed* one.

SPEC. CHAR. *Leaves* palmate.

DESCRIPTION.

A MODERATE sized tree. Leaves large, succulent, smooth, irregularly divided into five lobes, standing on long footstalks. The flowers are concealed at first from view, until the ripening or bursting of the fruit, which is a receptacle, not a pericarp; and the flowers here are of two kinds, as represented in the specific character.

HISTORY.

It is a native of the south of Europe, and produces its fruit in June and July.

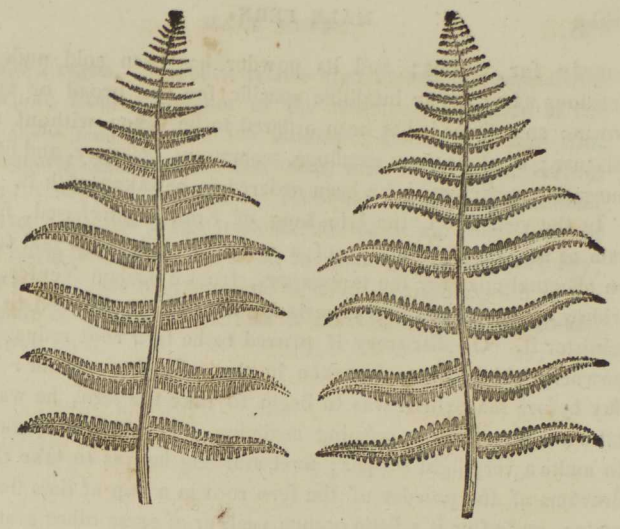
From history, says Dr. Woodville, both sacred and profane, the fig tree appears to have been known in the most early times. It has been long cultivated in England, and, if screened from the north-east winds, commonly ripens its fruit here. The fig, which has always been found a wholesome food, was by the ancients ripened or brought to perfection by caprification; a practice which in some countries is still continued. It had been observed that the fruit of this tree frequently withered and dropped off before it arrived at a state of maturity, and upon examination it was discovered that those figs succeeded best which had been perforated by certain winged insects, which therefore were supposed to be instrumental in ripening the fruit. This gave rise to caprification, which formerly consisted in tying near the young figs the fruit of the wild fig tree, in which the flies above mentioned breed in abundance; and these insects, upon acquiring sufficient strength, issue from the wild fruit, and by penetrating the young figs produce the effect intended. That this insect, which by the ancients was called Psenes or Culex, and by Linnæus Cynips psenes, produced this desirable effect, is generally admitted; but how it is to be explained has been the subject of some dispute, some asserting, that as pears and other fruit ripen quickest upon being bit or pierced by insects, so by caprification; whereas the sexualists maintain that they carry the farina of the male flower to the female florets, and therefore improve the fig: and it may be remarked that our figs cannot be raised from the fruit.

To prevent ripe figs from running into putrefaction, it is usual to dry them; which may be done either by the heat of the sun, or by means of an oven: the latter way is preferred, especially when the fruit has been caprified, as the larva of the cynips is destroyed by the heat. The best figs are imported from the southern parts of Europe in small chests, and are compressed into a circular form, of a yellowish colour, and filled with a viscid sweet pulp, in which are lodged numerous small yellow lenticular seeds. The surface of the figs is commonly covered with a saccharine matter which exudes from the fruit, and hence they have been named Caricæ pingues, or fat Figs.

The recent fruit, completely ripe, is soft, succulent, and easily digested, unless eaten in immoderate quantities; when it is apt to occasion flatulency, pain of the bowels, and diarrhœa. The dried fruit is pleasanter to the taste, and is more wholesome and nutritive. Figs are supposed to be more nutritious by having their sugar united with a large portion of mucilaginous matter, which, from being thought to be of an oily nature, has been long esteemed an useful demulcent and pectoral; and it is chiefly with a view to these effects that they have been medicinally employed.

Figs are directed by the London Pharm. in the decoction hordei compositum, and in the electuarium lenitivum. Externally applied they are supposed to promote the suppuration of tumours, and hence have a place in maturating cataplasms; with this intention they are sometimes used by themselves, as warm as they can easily be borne, to phlegmons of the gums, and other parts where a poultice cannot be conveniently applied.

Linnæus first put the fig into Class XXIV. Cryptogamia.



MALE FERN.

POLYPODIUM VULGARE.

Class XXIV. Cryptogamia. *Order* I. Filices.

ESSENT. GEN. CHAR. *Fructification* in roundish points, scattered along the back of the leaf.

SPEC. CHAR. *Fronds* bipinnate: *Pinnæ* obtuse, crenulate: *Root* scaly.

DESCRIPTION.

THE leaves shoot from the root, and curl round in their young state, afterwards extend themselves three or four feet: middle rib or stem covered with brown, tough, transparent scales. The pinnæ are from thirty to forty pair, gradually diminishing towards the top, when it ends in a point. The fructification is in regular dots on the back of the leaf, which are covered with a pellicle that bursts, and, having discharged the seeds, become brown.

HISTORY.

Native of Britain, common on heaths and borders of woods, and in rocky places.

MEDICAL VIRTUE.

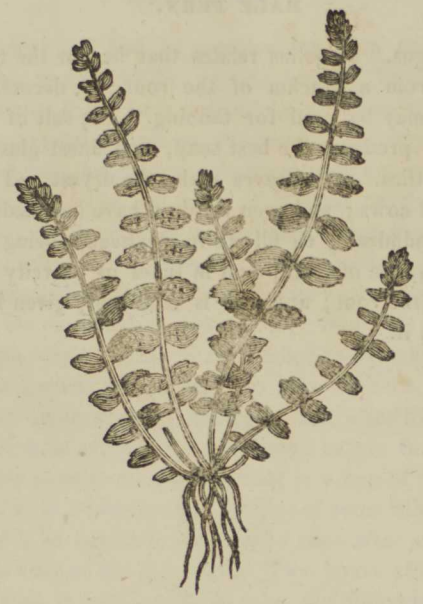
The root of this plant has long been esteemed a powerful

remedy for worms; and its powder has been sold under a fictitious name, as an infallible specific for the broad or tape-worm: sometimes it has been ordered to be taken without any mixture; at other times gamboge, scammony, mercury, and other purgative medicines, have been ordered to be taken with it.

In the year 1755, the late king of France purchased, for a sum of money, the receipt of a medicine which was said to be an effectual cure for the tape-worm, from a madam Neufer, the widow of a surgeon in Switzerland, whose husband used to administer it. On discovery it proved to be fern root reduced to powder, which was to be taken in the following manner: The day before the patient was to begin to take the fern, he was to take a dose of some opening medicine, and after its operation to make a very light supper; next morning he was to take three drachms of the powder of the fern root in a cup of lime flower water, and after it a little orange peel, or of some other grateful aromatic, and if he vomits it up, to take soon after another full dose of the powder of the fern root. Two hours after the dose of the fern root is swallowed, to take the following purging powders; viz. twelve grains of resin of scammony, mixed with as much of the panacea mercurialis (calomel digested in spirit of wine), and five grains of gamboge in powder, the dose being made stronger or weaker, according to the strength of the patient. Soon after taking this dose the patient is to drink tea, and as soon as the physic begins to operate, if he perceives that the tænia is coming away, he is to remain on the close-stool till it has entirely passed: if the purgative should prove too weak, the patient is to take a dose of Epsom salts, and to drink freely of broth. If the first dose of the fern powder and of the purging medicine has not the desired effect, the powder and purge are to be repeated next day: and if at any time the tænia is observed to be coming away, the greatest care must be taken not to break it.

Bergius, in his Materia Medica, says that he has seen several persons cured by these means; that some of them had passed one, and others two or three of these worms; and he seems to think that where this medicine failed with people who really had the tænia, that it has been owing to its having been under-dosed.

This is by no means a new remedy. Theophrastus mentions the root as employed to destroy the tape-worm, as well as Dioscorides and Fragus. Spigelius relates that he saw the tape-worm pass whole from a drachm of the root. A decoction of the whole plant may be used for tanning. The salt of this plant from burning produces the best soap, and finest glass, such as we use for bottles. The leaves make the dryest and best litter for horses and cows; and even children have had beds made of it. It helps admirably to fill up in packages, being very dry, for the conveyance of fruit; and in times of scarcity bread has been made of the root; and this is commonly given for swine, who fatten on it.



SPLEENWORT.

ASPLENIUM TRICHOMANES.

Class XXIV. Cryptogamia. *Order* I. Filices.

Essent. Gen. Char. *Fructification* in straight scattered lines.

Spec. Char. *Segments* roundish, crenate.

DESCRIPTION.

A small plant, six or eight inches in height. Leaves upright, numerous, pinnated. The ribs are of a black colour. Pinnæ in pairs, large, roundish, slightly toothed, sessile, about twenty pairs to a leaf, gradually diminishing towards the top.

HISTORY.

Common in the country, and found usually on old walls and rocks in shady situations.

MEDICAL VIRTUE.

The ancients considered this as a laxative, and fixed upon two drachms as a dose to clear away the black bile; and Boerhaave advises to take one or two drachms of the juice of the spleenwort for the cure of hypochondriac affections, which generally proceed from inspissated mucus, or bile. Idiots are said to have had their reason returned by occasionally employing this plant.

HART'S-TONGUE.

ASPLENIUM SCOLOPENDRUM.

Class XXIII. Cryptogamia. *Order* I. Filices.

Essent. Gen. Char. Same as the last.

Spec. Char. *Leaves* simple, cordate-tongue-shaped, entire: *Stipe* hirsute.

DESCRIPTION.

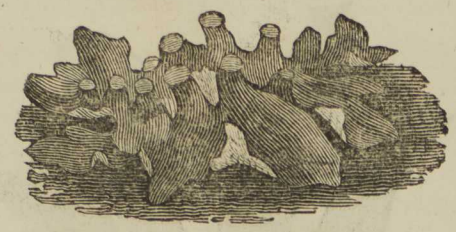
Leaves long, tongue-shaped, pointed, entire, often a foot long, of a shining green, waved at the margin.

HISTORY.

Common on shady rocks, old walls, and producing its fructification in August and September.

MEDICAL VIRTUE.

It has an astringent quality, and is often used made into ointment for burns and scalds, and for the piles; and has been taken internally, infused in red wine, in hæmoptoe, diarrhœa, and dysentery.



ASH-COLOURED LIVERWORT.

LICHEN CANINUS.

Class XXIV. Cryptogamia. *Order* II. Algæ.

ESSENT. GEN. CHAR. *Fructification* in tubercles or shields, inverted in their proper cortical receptacles, on a variously-formed and constructed frond.

SPEC. CHAR. Expanded, grayish; whiter with brownish veins and fibres beneath: *Lobes* oblong, large, broader outwards; fertile ones scattered, marginal narrow: *Shields* perpendicular, revolute, roundish, anterior, tawny-rufous.

DESCRIPTION.

THIS lichen spreads on the ground, consisting of a leather-like substance, ash-coloured, appearing as if covered with farina, divided into lobes, beneath woolly, veined. Peltæ round, or oblong, terminal, hard, solid, ascending, of a reddish brown colour.

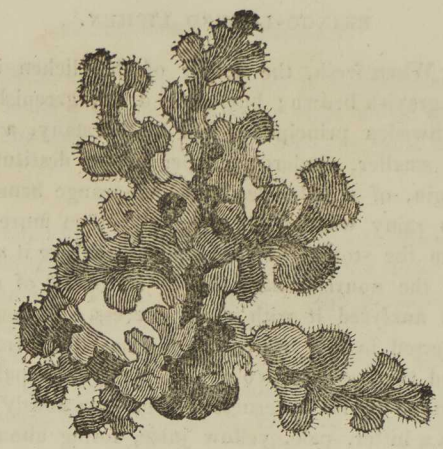
HISTORY.

Found on heaths, dry pastures, and woods.

MEDICAL VIRTUE.

The pulvis antilyssus, a powder composed of equal parts of this lichen and black pepper*, was first recommended as a preservative against the rabies canina by Mr. Dampier, brother of the celebrated circumnavigator of that name; and by the authority of Sir Hans Sloane it was published in the Philosophical Transactions. This powder was afterwards adopted in the London Pharmacopœia in 1721, at the desire of Dr. Mead.

* This was the original composition; but the quantity of pepper rendering the medicine too hot, the powder was afterwards prepared of two parts of the lichen and one of pepper.



ERINGO-LEAVED LICHEN.

LICHEN ISLANDICUS.

Class XXIV. Cryptogamia. *Order* II. Algæ.

ESSENT. GEN. CHAR. The same as the last.

SPEC. CHAR. *Leaves* greenish-chesnut, sinuate-laciniate, many-cleft, segments ascending, channelled, ciliate: *Shields* nearly marginal, chesnut, slightly margined.

DESCRIPTION.

THIS lichen is foliaceous, large, the leaves crowded, connected together, membranous, tough, variously divided into blunt lobes, turning in at the edges, and fringed with short strong bristles. The shields large, of a reddish brown colour on the lobes of the leaves.

HISTORY.

Native of Britain, and found abundant on the mountains of Wales and Scotland. This is a perennial lichen, very common in Iceland, but also found in the forests and dry steril woods of Switzerland and Germany, growing upon stones and on the earth. It has dry coriaceous leaves, divided into lobes and laciniæ, which are again notched and subdivided with elevated margins beset with short, very minute, rigid, parallel hairs, and marked with white spots, reddish towards the points. Amongst the leaves are found peltated, somewhat excavated, shining, viscid bodies, internally of a brown colour: these are the peri-

carpiums. When fresh, the colour of this lichen is greenish yellow, or grayish brown; but, when dried, greenish white, or gray. In Sweden principally, and in Germany, a variety is found with smaller, tenderer, crisper leaves, destitute of hairs on the margin, of a paler lead colour, orange beneath. It is gathered in rainy weather, because it is then more easily detached from the stones. In the countries where it abounds, it is used for the nourishment both of cattle and of man. Mr. Proust has analysed it with much success. A pound of dry lichen immersed in cold water soon resumed its fresh colour, and weighed two pounds two ounces, gave out a pale fawn colour, but none of its bitterness. When previously powdered, it gives out a bitter, pale, yellow juice, losing about three per cent. in cold, and six in boiling water. This bitterness resides in an extractive which is employed in Iceland to dye a brown colour. By boiling lichen a quarter of an hour, it becomes sufficiently tender for use as an esculent vegetable. Lichen cooked in this manner has a kind of membranous elasticity, peculiar to some of the algæ and fungi; and, after being dried, has only to be moistened with boiling water to resume this elasticity. Its appearance is not very prepossessing, having an unequal yellow colour, and a slight marine taste. A pound of dry lichen by boiling weighs three pounds, and when dried again is reduced to two-thirds of a pound.

The decoction has a clear yellow colour, and a slightly bitter taste, which, even when made with eight waters, on cooling becomes a tremulous jelly, without any viscidity. This jelly on standing contracts, expresses the water, cracks, and dries into transparent angular fragments, of a deep red colour, insoluble in cold water, soluble in boiling water, from which it is precipitated by infusion of galls. By nitric acid it is converted into oxalic acid. The insoluble part dissolves readily in nitric acid, forming oxalate of lime and oxalic acid, and is converted into a gelatinous pulp by potass.

According to this analysis, one hundred parts of dry lichen give of

Bitter extractive - - - - - -	3
Matter soluble in hot water - -	33
Matter insoluble in hot water -	64 — 100.

The last substance has much analogy with gluten, and the second with starch, particularly in the remarkable property of being precipitated by infusion of galls. It differs from it, however, in not being glutinous, and in the solid matter of the jelly contracting and separating from the fluid, as curd does from whey.

MEDICAL USE.

From the analysis of this lichen it appears to consist principally of a nutritious substance, combined with a bitter; and on the combination of these, its medical virtues probably depend. It is used, according to Arnemann,

1. In cough with expectoration, threatening to terminate in consumption; after neglected catarrhs, the consequence of peripneumony, when the expectoration becomes more copious and purulent.

2. In emaciation from measles, (Schoenheide); from wounds and ulcers with great discharge, (Plenk); after salivation, and from actual ulcers in the lungs, when there is no fever, (Scopoli), especially after neglected colds, or from translated morbid matter. In a high degree of the disease it does little good, but the night sweats are diminished by it, (Millin). In pituitous phthisis it is of great service.

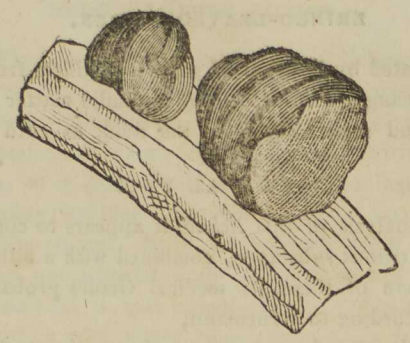
4. In hæmoptysis, (Frize).

5. In chincough, (Tode).

6. In diabetes, as a tonic and palliative remedy.

It is commonly exhibited in decoction with water, broth, or milk, after the bitter has been extracted from it by steeping it in warm water; or in substance, boiled in chocolate or cocoa, or made into a jelly with boiling water. Half an ounce, or an ounce, must be used daily, and continued for some time. Proust disbelieves its specific virtues, but recommends it strongly as an article of diet in times of scarcity, and as a very convenient anti-scorbutic vegetable in long sea voyages.

Having become of late a very fashionable remedy, various different modes of preparation have been invented, for which see the bill of Mr. Hastings, a very ingenious chemist in the Haymarket, who has been extremely assiduous in regard to this, as well as several other valuable articles in medicine.



TOUCHWOOD, OR AGARIC.

BOLETUS IGNIARIUS.

Class XXIV. Cryptogamia. *Order* IV. Fungi.

ESSENT. GEN. CHAR. *Fungus* horizontal, beneath porous.

SPEC. CHAR. Without stem, powdery, smooth, with very fine pores.

DESCRIPTION.

THIS fungus is sessile, horizontal, consisting of a hard woody substance like a horse's hoof; the upper side is smooth, but having circular markings, or ridges: the under side is flat, white, yellowish, full of minute pores.

HISTORY.

This fungus is frequently met with on different kinds of trees in Britain, especially the cherry and plum; and is said to have been sometimes brought into the shops mixed with the true agaric of the larch: from this it is easily distinguished, by its greater weight, dusky colour, and mucilaginous taste void of bitterness. The medullary part of this fungus, beaten soft, and applied externally, has been much celebrated as a styptic; and said to restrain not only venous but arterial hæmorrhagies, without the use of ligatures. Several English surgeons have published cases in which the agaric was successfully used, as Sharp, Warner, Gooch, and others. It is best when gathered in August or September.

THE END.

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